Dental Digest

December 1949

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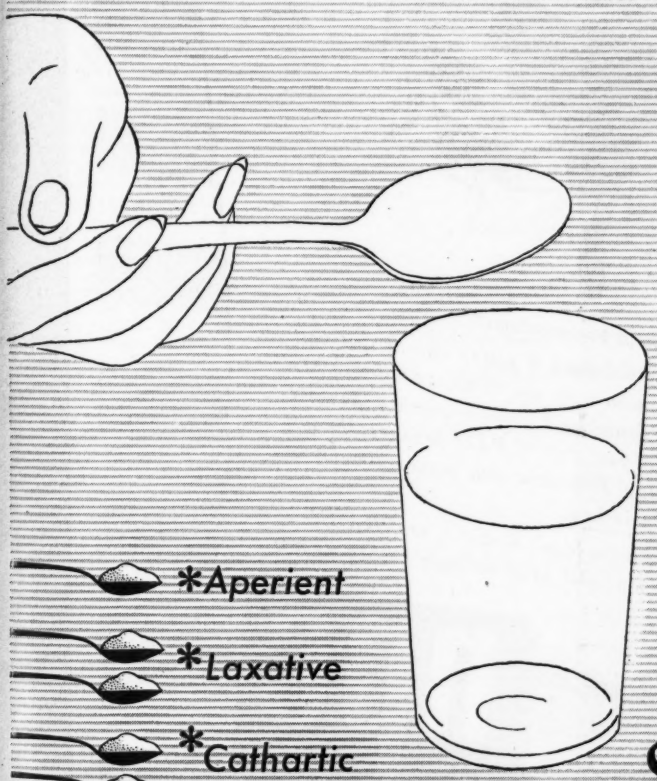

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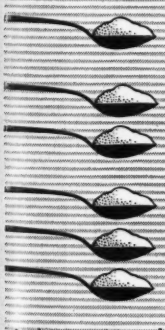

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JOSEPH E. SCHAEFER, M.D., D.D.S., and Ralph C. Rudder, M.D., D.D.S. contribute in the present issue of DIGEST the third in their series of case histories dealing with problems in oral surgery, RADIUM TREATMENT FOR CARCINOMA OF THE PALATE.

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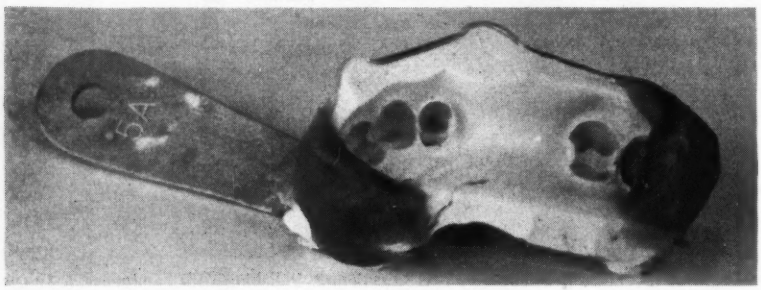
An Evolutionary Trend

in GOLD INLAY, CROWN, *and* BRIDGE *Casting*

WILLIAM ROY EBERLE, D.D.S., Chicago

DIGEST

With this semidirect technique only one master impression is needed and a gold bridge may be made in one appointment. The technique combines a timesaving short-cut with possibilities of (1) better occlusion, (2) esthetics, and (3) marginal accuracy.



1. *An alginate impression boxed with wallpaper cleaner.*

Two Important Discoveries

Research has uncovered two important chemical and physical phenomena that may well revolutionize conventional crown and bridge procedures:

1. Methyl methacrylate will depolymerize and revert to a gaseous monomer, without residue, at 400° Fahrenheit.

2. The addition of certain tertiary amines to methyl methacrylate monomer will produce in the gel mix a complete polymerization at normal temperatures *without pressure* in a fifteen to thirty-minute interval.

Technical Possibilities

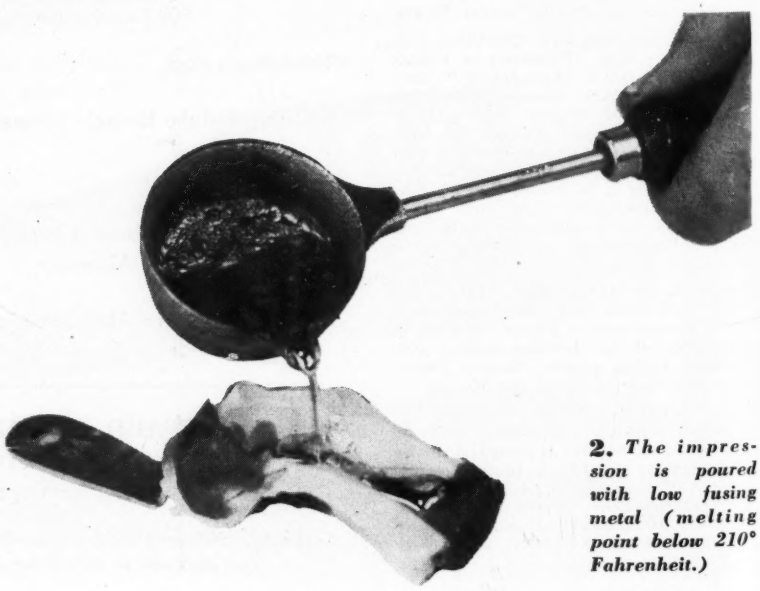
These discoveries and the present near precision casting of dental gold alloys, unfold technical possibilities which could only have been wishfully dreamed of ten years ago. The weak link in the casting chain when applied to larger resorations has been the dimensional instability and friability of even the best inlay waxes. And the better the wax, usually, the harder it is to manipulate. Now it will be possible to make an acrylic matrix, or core, quickly and perfect it with easy flowing softer waxes. The matrix or core is then invested and cast in the usual way as the acrylic core burns out, completely without residue, at even a lower temperature than wax requires.

The Advantages of the New Method

The advantages of such a system are immediately apparent: (1) Occlusion, the important component of most restorations, may be carefully worked out in the mouth without fear of distorting the wax pattern.

(2) Wax may be added to increase the height or slope of a cusp and the acrylic may be easily cut away to deepen a sulcus.

(3) Margins may be more exactly secured than is possible by an indirect system.



2. *The impression is poured with low fusing metal (melting point below 210° Fahrenheit.)*

(4) The principle may be adapted to any type of cavity preparation such as three-quarter crowns, slice preparations, pinlays, onlays, and full cast crowns.

(5) It may be combined with an indirect system as a final try-in check on occlusion and fit of abutments.

Defects of the Indirect Technique

Although the entirely indirect system is now used extensively and has considerable merit, there are some objectionable factors:

(1) The method is not economical, comparatively, unless an expert technician is available.

(2) Dimensional exactness is not dependable, especially in large bridges.

(3) Hemorrhage, bubbles, distortions, and volume changes cause annoyance and imperfect margins.

(4) Esthetics are not worked out where they are best accomplished, that is, in the mouth.

(5) Occlusion, the weakest point, must be perfected by cutting hard gold. The result is not always *articulation*, but a blunt *removal of interference*.

The Semidirect Technique

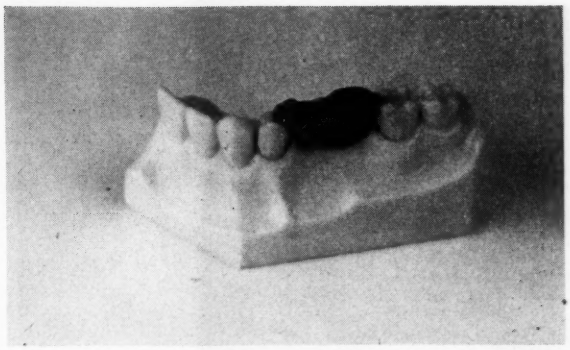
Figure 1—After abutments are prepared, dry carefully and take an alginate impression. Dry the impression well and box (wallpaper cleaner is easiest.)

Figure 2—Pour in low fusing metal (melting point below 212° Fahrenheit.) If bubbling occurs, because the impression is not quite dry, pull out the metal and repour. Vibrating or taping makes sharper detail. Plaster may be used but consumes more time.

Figure 3A—Where extensive occlusion or esthetics are involved, make a wax pontic in the mouth of the approximate shape of the bridge. This corresponds to the "bite."

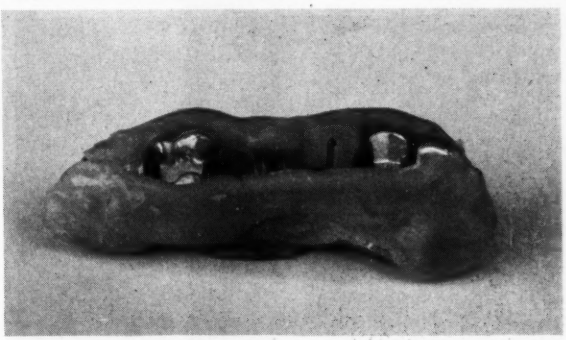
Figure 3B—Steele, long pin, or other types of porcelain pontics may be attached to the wax in their most pleasing position. If acrylic pontics are to be used, carve the wax to the shape desired.

Figure 4—Make a plaster or wax matrix around the metal cast. Use



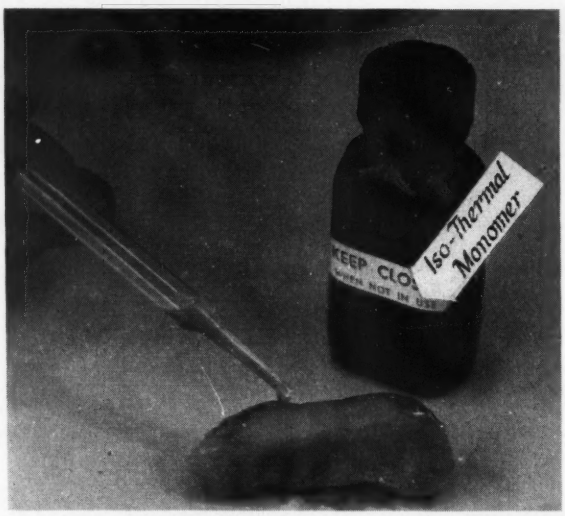
3A. *A wax pontic the size of the bridge.*

3B. *Porcelain pontics may be positioned in the mouth.*

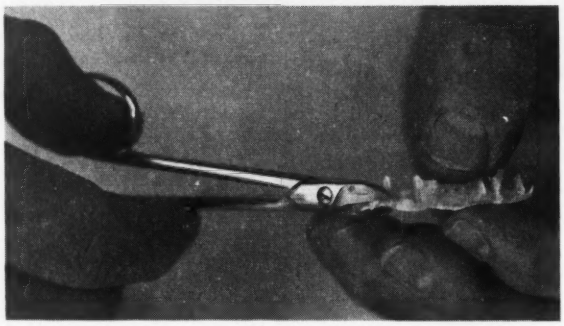


4. *A wax or plaster matrix is formed around the cast. Lubricate freely.*

5. *Fine acrylic powder (any kind or color) is poured into the matrix.*



6. ***Drop in the monomer; cover with tinfoil, cellophane, or small dish.***



7. ***Remove the acrylic pattern in ten or fifteen minutes while rubbery, and trim surplus.***

8. ***When hard, perfect the acrylic pattern in the mouth with synthetic impression and inlay waxes.***

9. ***Invest the pattern carefully.***

wax where possible; it is easier and faster and has even less effect on the gel than plaster. Remove core, freely *lubricate* matrix and cavities. (Use silicone mold release or any other good lubricant.)

Figure 5—Pour fine acrylic powder (any kind, any color) into matrix.

Figure 6—Add the tertiary amine monomer (such as cold-pacs or fastcrown) drop by drop. Cover with tinfoil, cellophane, or dish (this prevents evaporation) and let it set ten to fifteen minutes (heat or ultraviolet rays will accelerate the process.)

Figure 7—Remove matrix. At this stage the acrylic is rubbery and extraneous edges may be easily snipped off with small curved shears. It may even be fitted in the mouth. Replace on cast and place under lamp for another ten to fifteen minutes for final hardness.

Figure 8—(1) Adjust in the mouth to a minus occlusion; sharp round burs are satisfactory for this. (2) The margins may be adapted with a hot instrument and disced if desired. Synthetic impression wax is added to the gingival or other margins where flow is necessary. This wax flows well under pressure and is hard at 70° Fahrenheit. Press hard to place and chill before removing. Inlay wax on a hot spatula is also flowed on the imperfect margins and occlusal surface. (3) This may also be done on the lubricated cast and perfected in the mouth. The two waxes may be used in combination to complete the articulation. (4) Start by biting into softer wax under a layer of rubber dam and build up cusps with hard wax. (Both inlay and synthetic wax stick well to the *dry* acrylic and may be intermixed.) (5) It is obviously better to complete the articulation before completing the inlay impressions. Some of these margins are delicate and all of them should be inspected as a final step.

Figure 9—Invest and cast (for dimensional accuracy an investment of 2 parts alpurpose and 3 parts crystobalite is preferred.) Take special care of thin margins. For this reason it is well to avoid vibrating the pattern and use vacuum only in

10. ***Large inlays and crowns may be made the same way. Temporary splints are quickly fashioned.***

mixing investment. Additional casts may be made from the original impression, either in metal or stone for finishing or making temporary restorations. The procedure may be made entirely indirectly except for *perfecting articulation* and checking fit of margins.

Figure 10—Large inlays and cast crowns may be handled in a similar manner. A matrix is made by rolling wax, tinfoil, or paper around the die and pouring in the acrylic powder. It is conceivable that the principle could be applied to the construction of removable bridges of certain types.

Temporary Splints are no Problem

One of the most practical features of this novel idea is the ease with which a *temporary* bridge, inlay, or crown may be fashioned. Should another appointment be more expedient, the temporary acrylic pontics look well and remain secure. They will safely protect for weeks the all too frequent accidental exposure of the freshly cut dentine which often results in painful pulpitis or necrosis.

Summary

1. A semidirect system of bridge and inlay construction is outlined in which an acrylic core is quickly and easily fashioned. This matrix is carried to the mouth and perfected by adding free flowing waxes.

2. The final form is then invested and cast in gold.

3. Articulation is emphasized as the chief concern. It may be precisely worked out in the mouth without fear of distortion.

4. Excellent inlay impressions are easily made on even the most complex cavities.

5. The principles outlined can have numerous variations and the ingenious dentist will find many ways to apply them.

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APHTHOUS STOMATITIS

Case History

A married woman of 21 has a normal history except for the following: 1. One attack of pyelitis. 2. Aphthous stomatitis since early childhood. 3. While she is never entirely free from symptoms, during menstruation her mouth shows numerous lesions. 4. She has a temperature up to 102° Fahrenheit.

Medication—She has been in hospitals several times and has received the following medication: 1. Penicillin, orally and intramuscularly. 2. Sulfathiazole. 3. Bismuth by injection. 4. Large doses of vitamin B complex. 5. Ascorbic acid and numerous mouth washes.

This medication has not produced any change in the clinical picture.

Present Treatment—1. She receives 1 tablet of cebefortis (thiamine hydrochloride 5 milligrams, riboflavin 5 milligrams, pyridoxine 1.5 milligrams, calcium pentothenate 25 milligrams, nicotinamide 50 milligrams, and ascorbic acid 150 milligrams) daily. 2. She uses methylrosaniline chloride locally and 1 ampul of bismuth arsphenamine sulfonate (bismarsen) weekly.

This regimen seems to shorten the duration of the acute symptoms but has not cured her symptoms.

Cause of Symptoms

The cause of aphthous and herpetic stomatitis is the virus of herpes simplex, to which some persons may have little or no continued immunity. The susceptibility may be modified by secondary conditions.

The lesions are recurrent and they resist therapy with ordinary methods such as have been used in this case.

Method of Prevention

1. The most effective measure for prevention is recurrent vaccination with smallpox vaccine.

2. A series of vaccinations are given at intervals of a week or ten days, starting when the lesions are absent, if possible, and continuing regardless of "takes."

3. The local use of estrogenic ointment has also been suggested.

From Queries and Minor Notes, *Journal of the American Medical Association* **141**:362 (October 1) 1949.

The Lateral

DELIVERY-EXTRACTION *Technique*

A. W. WARD, D.D.S., San Francisco

DIGEST

Before the development of roentgen rays tooth extraction was an unscientific procedure. Because of the impossibility of ascertaining the shape, character, or position of the tooth in its relation to the alveolar bone and the impossibility of securing sufficiently profound anesthesia, tooth fracture occurred frequently. Traumatic injury to the bone and periodontium made the incidence of infection or severe inflammation common sequelae. Slow painful healing was characteristic. As a result of the development of x-ray and proper local anesthesia the mucoperiosteal flap and visual tooth extraction technique was made possible. A description of instruments especially designed to carry out this technique devised to simplify the extraction of teeth and an analysis of the procedure used is given herein.

Preroentgen Methods of Extraction

1. When fracture of tooth roots occurred, cutting forceps were sometimes used to penetrate the bone in an attempt to engage the hidden fragment.

2. Forceps beaks were sometimes forced between soft tissues and the alveolus to the height or depth considered necessary to engage the root after the bone had been crushed or bitten through by the forceps.

3. Forceps were frequently placed over the area containing the root fragment and beaks were forced through soft tissues, labially and lingually, in an attempt to remove gingival tissue, bone, and root simultaneously.

4. Recourse to elevators instead of forceps for removing fractured roots was often responsible for serious trauma as the inability of seeing the root except briefly, and then only its upper extremity surrounded by walls of dense bone, demanded force to drive the elevator point between the socket and the root in order to engage the root with the elevator.

5. By burrowing away bone on the mesial or distal surface of the offending root enough space was sometimes secured to engage the elevator point with the root tip.

Local Anesthesia and X-ray Developed

Most of the trauma of the prex-ray era was excusable; no better methods had been devised. As a result of the almost simultaneous development of x-ray and satisfactory local anesthesia the mucoperiosteal flap and visual tooth extraction technique was made possible. For the first time refractory teeth were removed with minimum inconvenience, trauma, or force.

Proper Instruments Adapted

In order to remove the alveolar bone, exposed by the mucoperiosteal flap which covered the root fragment (refractory, bulbous, curved, hypercementosed, or exosted root or roots) proper instruments had to be adopted. As no instruments had been devised for this particular procedure, oral surgeons adapted the bone chisels long in use by the general surgeon who had adapted, with little change, the chisels of the woodworker, the carpenter, the cabinet maker. In the instrumentarium of the oral surgeon and the orthopedic surgeon are found counterparts of instruments used by journeymen workers for centuries past in working wood and metal.

Elimination of Trauma—The application of these chisels and the use of the mallet in combination with the mucoperiosteal flap has been of immense importance in three ways, (1) in eliminating trauma with its incident pain and infection following extraction of teeth; (2) in the elimination of infectious foci at root apexes, and (3) in removing cysts and residual areas in alveolar bone at the site of former extractions.

An Outstanding Development—As a measure of health, physical and mental, the mucoperiosteal flap operation is a noteworthy contribution to the technique of oral surgery. In this country Doctor Josef Novitzsky of San Francisco and Doctor William Shearer of Omaha pioneered.

Operative Imperfections—Surgeons familiar with buccal plate removal recognize that there are certain imperfections in the operation. The outstanding imperfections are the following:

1. Chiselling of the alveolus has been done in an effort to remove the bone over the roots. Because of the design of instruments in the past this is the only way in which conventional chisels can function.

2. Removal of the buccal plate does not create space. In order to re-

move an unusually stubborn root, excessive force must be applied or alveolar bone, mesial and distal, must also be removed.

3. The number of mallet blows are unnecessarily multiplied, those used to remove the buccal plate are wasted, and subject the patient to much unnecessary annoyance.

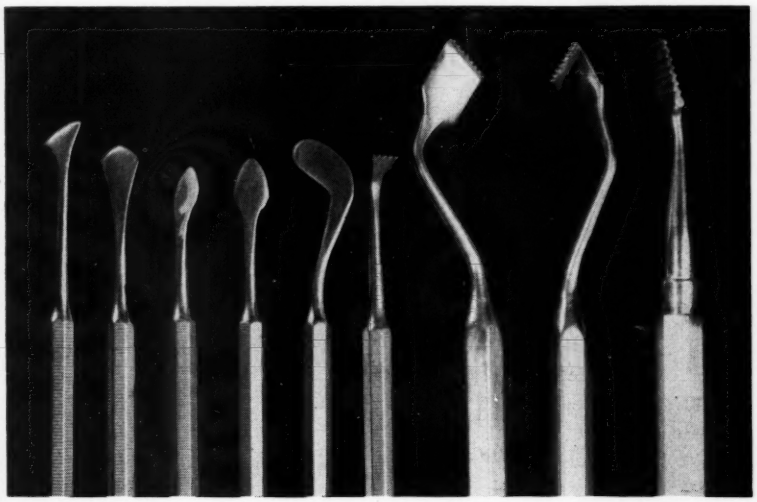
4. Malleting over the mandibular roots in the conventional manner is extremely difficult when the force of the mallet is parallel to the long axis of the teeth. In many instances malleting on the mandible can be accomplished with the instrument held at a right angle to the long axis of the tooth with the mouth closed.

New Instruments and a New Technique

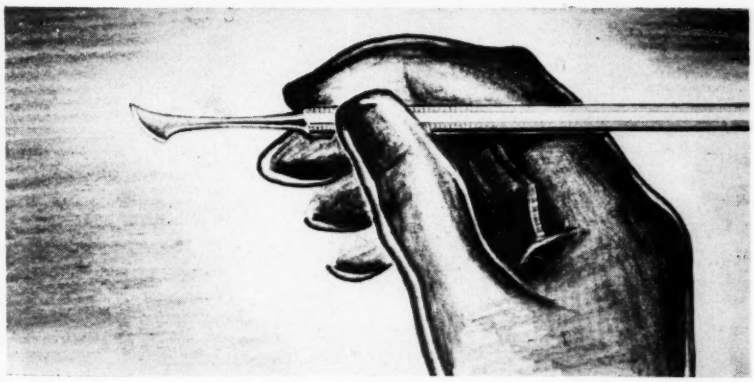
Instruments and a technique have been developed which simplify the extraction of teeth to such an extent that none is difficult.

Procedure—The basic feature of the procedure is to weaken the attachment by parallel incisions or cuts through the alveolar bone at the crest of the ridge. The cuts are (1) deep enough to pass by the convexity of the buccolingual aspect of the root and (2) long enough that the tooth can be moved buccally or labially with forceps or elevator without excessive force.

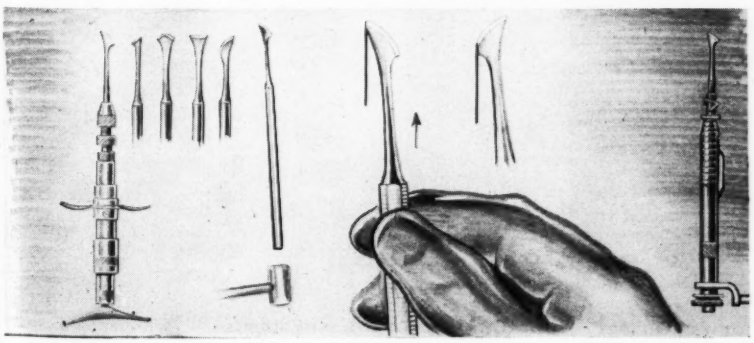
Advantages—1. With this technique unplanned root fractures will not occur.



1A. *Type of instruments.*

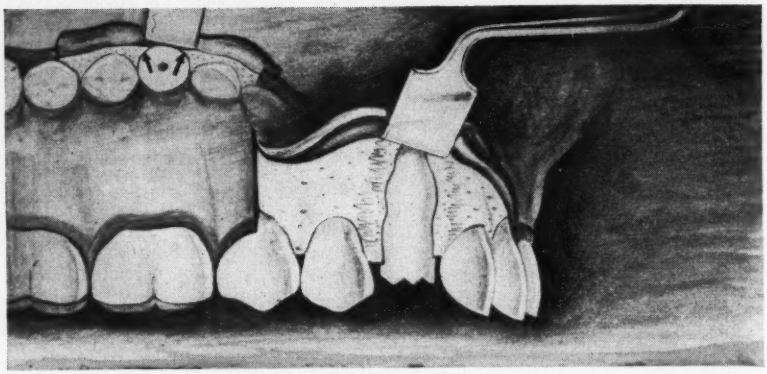


1B. *The knife used to incise the soft tissue is used to elevate the flaps if they are not too adherent.*

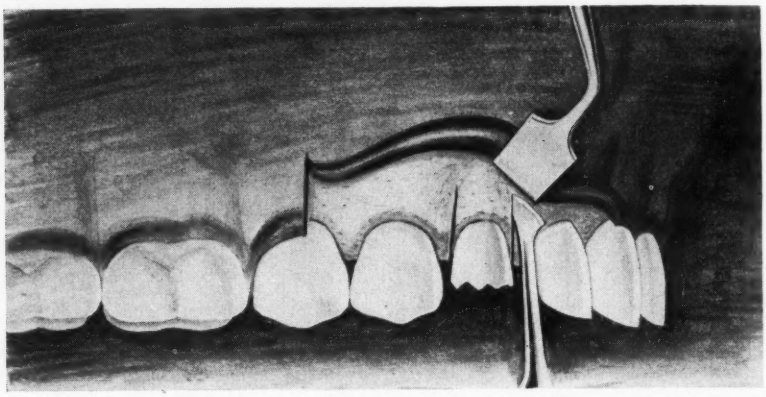


2. *The same knife is used to make parallel incisions in the alveolar bone. The hand mallet or mechanical mallet may be used. The point is used to penetrate the alveolar plate. The heel is sometimes advantageously used to advance bone incision.*

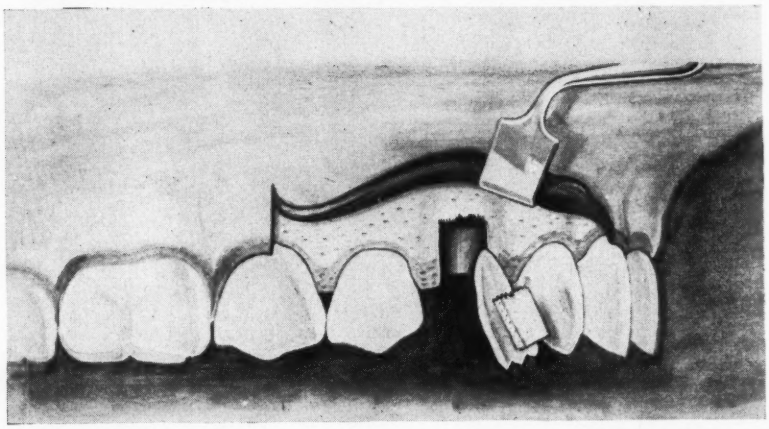
3. *Usual procedure in Novitzsky flap operation: Flap embraces one and one-half tooth each side of tooth to be delivered. The cortical bone is removed to expose the buccal surface of root, but the root is still not ready for delivery because it is bound by its convexity (arrows.) This flap may sometimes be used advantageously.*



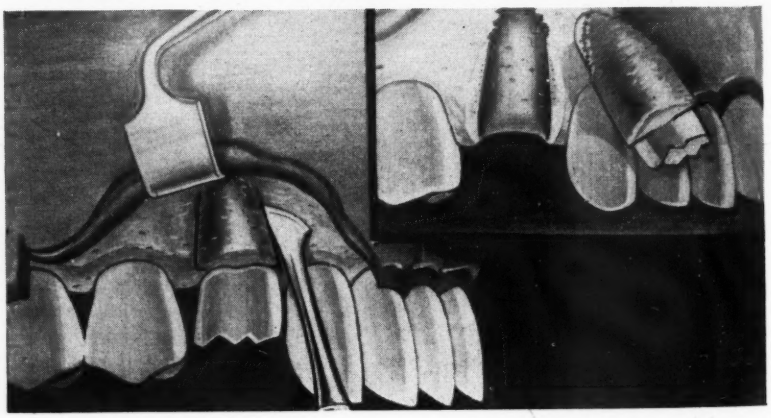
4. *Incisions through cortical plate are of sufficient length and depth in alveolar bone to release convexity of tooth root.*

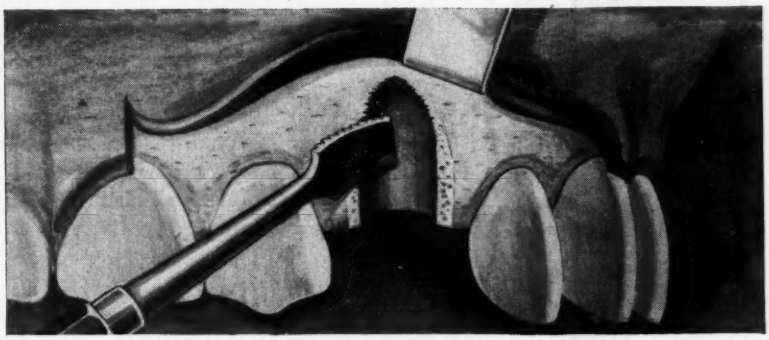


5. *Tooth fragment is delivered labially by use of forceps or elevator. The portion of the labial plate may be adherent to the tooth root.*

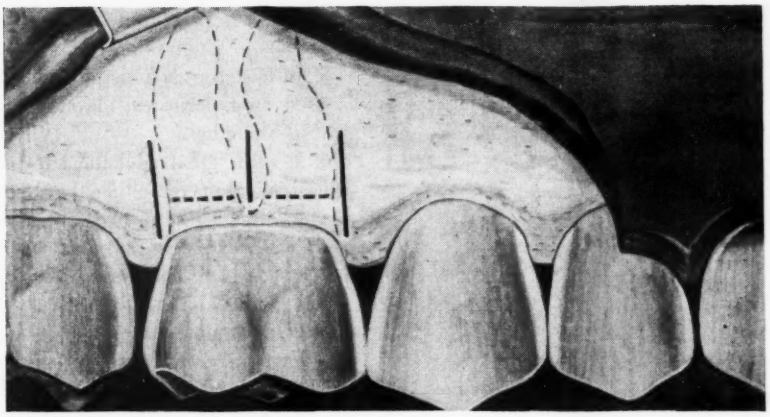


6. *In the extraction of the upper cuspid or any other tooth with excessively prominent bone, the flat of the blade is parallel to body of bone. The point of the instrument is directed along the cementum. The delivery of tooth laterally obliterates the canine eminence or too prominent bone in extractions other than cuspid. The prominence comes away still attached to root.*

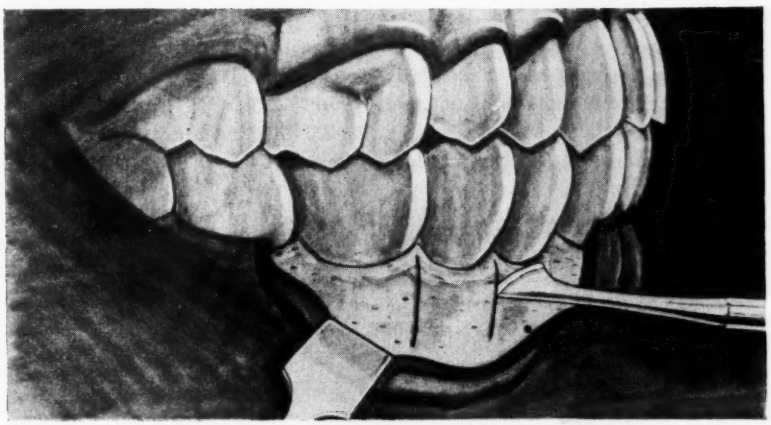




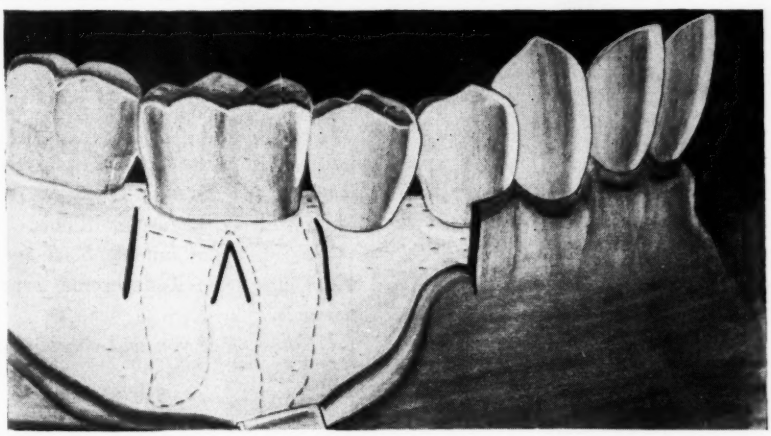
7. *Condensed alveolar bone edges are removed later with a chisel or rasp. The line of incision in alveolar bone contacts, or near contact, the cortical external plate and lamina dura; the reduction of junction exposes some cancellous bone.*



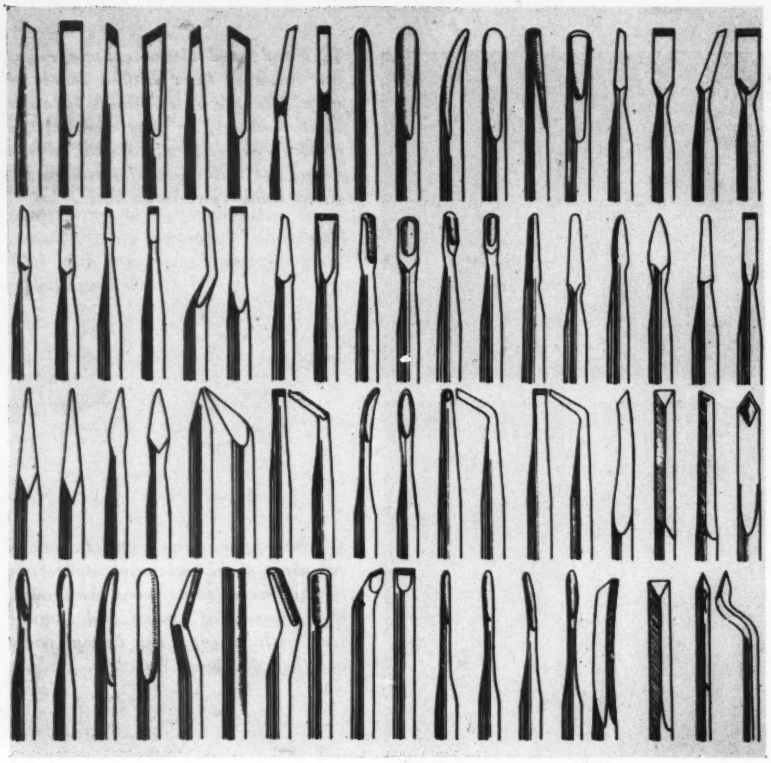
8. *An upper molar extraction calls for three short incisions; separation of the buccal roots from the crown, the removal of crown and lingual root with forceps, the buccal roots are then displaced buccally.*



9. *In mandibular molar extractions the teeth are closed firmly to prevent movement of the mandible. The mucoperiosteal osseosector is driven at right angles through the dense bone plates. The closed mouth relaxes the lips and cheeks.*



10. *A lower molar with two roots is easily removed. Mesial and distal bone incision and an inverted V incision at the bifurcation; the tooth is readily displaced laterally. When roots are too divergent or convergent, it is sometimes expedient to separate the roots.*



11. ***Conventional instruments used in mechanical mallets.***

2. Flaps wide enough to give full view and to preserve good circulation are advised.

3. Retraction of the flap is best accomplished by use of specially designed retractors. The author suggests that for retraction it is usually convenient to use the retractor in the left hand and the bone instrument or mechanical mallet in the right, allowing the nurse to sponge.

Cutting Instruments—The newly designed cutting instruments function (1) as knives for soft tissue incising and (2) as bone cutters. The outstanding feature of the new technique is that after bone is exposed a blade is driven through the alveolus in such a manner as to weaken the tooth attachment. This allows the tooth to be displaced laterally but with the bone intact.

Various Uses of the New Instruments—The use of these new instruments is not limited to tooth extraction. They facilitate the following surgical procedures: 1. The removal of bony prominences in the region of the maxillary third molars, torus palatinus, and torus lingualis.

2. Removal of residual areas harboring infection.

3. Knife edge alveolar ridges can be readily reduced.

4. The knife-chisels will be found (1) most useful in the extraction technique described and (2) of great assistance in gingivectomy.

5. In elevating soft tissue the rasp is used as a periosteal elevator and process smoother.

6. It is of great advantage to use a mechanical mallet, either the Reiter or Impactor. These devices are especially satisfactory since an oil sterilizer has been utilized.

Conclusion

1. Extremely satisfactory results can be obtained by use of hand mallets and new extraction instruments. The intelligent use of mechanical mallets with proper selection of instruments greatly simplifies this operation.

2. The technique as outlined is not limited to any teeth or to any position in the mouth, except for the removal of lower third impacted molars. Because of the density of the bone in this location conventional methods and instruments are sometimes preferable.

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Fracture of

The MAXILLA *and* ZYGOMATIC ARCH

RALPH W. EDWARDS, B.S., M.A., D.D.S., Kansas City

DIGEST

Injuries to the middle third of the face can involve the orbits, the nose, the zygomatic arch, the sinuses, and the maxillae. Often these bone injuries are of the crushing type and can produce many complications. Of recent years most injuries of this character in civilian life occur in automobile accidents, although many of them are suffered in athletic contests.

A successful method for reducing a fractured maxilla and obtaining proper occlusion of the teeth is described in the following case history.

Case Report

History—A young man, aged 18, a student, was admitted to the University of Kansas Hospital on March 27, 1946, with a chief complaint of a fractured maxilla and zygomatic arch. The previous day he had been playing baseball; a fellow player, in attempting to catch a fly-ball, crashed into him.

Clinical Examination—1. The right zygomatic arch was crushed and depressed, with a subconjunctival and generalized orbital ecchymosis and hematoma of the right side (Fig. 1).

2. The right maxilla was fractured posteriorly from the cuspid and was displaced medially and inferiorly approximately ½ centimeter (Fig. 2) preventing the teeth from occluding normally.

3. The fracture line in the palate followed the median palatal suture.

Roentgenologic Examination—1. A crushing type of injury to the right zygomatic arch involved the anterior and lateral walls of the maxillary sinus.

2. The fracture extended to the orbital rim.

3. The right maxilla was displaced medially and inferiorly (Fig. 3).

Diagnosis—1. Compound fracture of the right maxilla.

2. Comminuted and depressed fracture of the anterior portion of the right zygomatic arch.

Operation

Prior to operation a plaster headcap with a heavy wire embedded in the right temporal region was adjusted to the patient.

Premedication—1. Three grains of delvinal sodium were given one and

1. *Photograph of patient on admittance to hospital.*

one-half hours before the operation. 2. One hour before the operation 1/6 grain morphin sulphate and 1/150 grain atropin sulphate were given.

Anesthesia—Under pentothal sodium anesthesia, on March 29, 1946, the fractures were reduced.

Procedure—1. The depressed malar bone was reduced by the method of Roberts.[1]

2. A stab incision with a bistoury knife was made ¾ of an inch directly below the external canthus of the eye, extending downward and through the periosteum of the depressed bone.

3. A finishing nail was inserted through the incision; a few taps of a mallet served to penetrate the cortex of the malar bone.

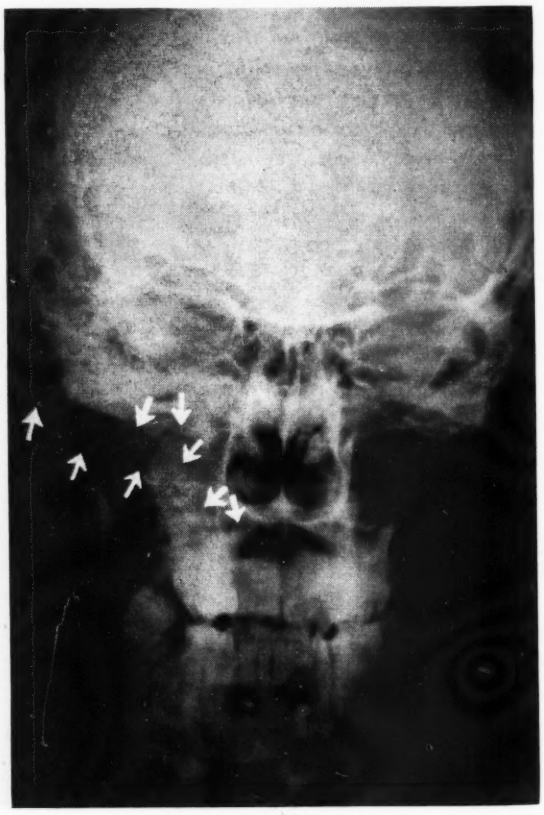
4. A corkscrew-like instrument was inserted through the cortex and the malar bone was elevated to its normal position.

5. The stab incision was closed with a silk suture.

2. ***The right maxilla was fractured posteriorly from the upper right cuspid tooth. Medial and inferior displacement is shown with inability to occlude the teeth.***

Stabilization of the Maxilla

The fractured maxilla was adjusted to its normal position so that occlusion of the teeth was obtained. However, when the jaws were opened the fractured maxilla drifted medially and inferiorly. Stabilization of the fractured jaw was obtained by the method developed by Federspiel[2] in 1924 for the fixation of horizontal fractures of the maxillae: A stainless steel wire, 0.020 gauge, was fastened to the teeth of the fractured maxilla, brought through the cheek with a large third circle cutting needle, and attached to the wire extension from the head-cap (Fig. 4).



3. ***Posteroanterior roentgenogram of skull showing fractures of the right maxilla and zygomatic arch.***

Method Satisfactory—This means of fixation of the fracture was satisfactory and the maxilla was retained successfully in normal relationship. Normal occlusion of the teeth was accomplished (Fig. 5).

Course of Recovery—1. Progress was satisfactory and the postoperative period was without incident.

2. The patient was dismissed from

[1]Roberts, Sam E.: Fracture of the Malar-zygomatic Arch, Ann. of Oto., Rhin., and Laryn. **37**:826-838 (September) 1928.
[2]Federspiel, Matthew N.: Personal communication, June 9, 1948. Reported: Maxillo-facial Injuries, Wisc. Med. J. **33**:561-568 (August) 1934. Methods of Repair for Jaw and Face Injuries, J. Wisc. State Dent. Soc. **17**:193-201 (November-December) 1941.

the hospital on April 2, 1946.

3. On April 27, 1946, four weeks after reduction and fixation, the wires and head-cap were removed.

4. A pleasing cosmetic and functional result had been obtained (Fig. 6).

Summary

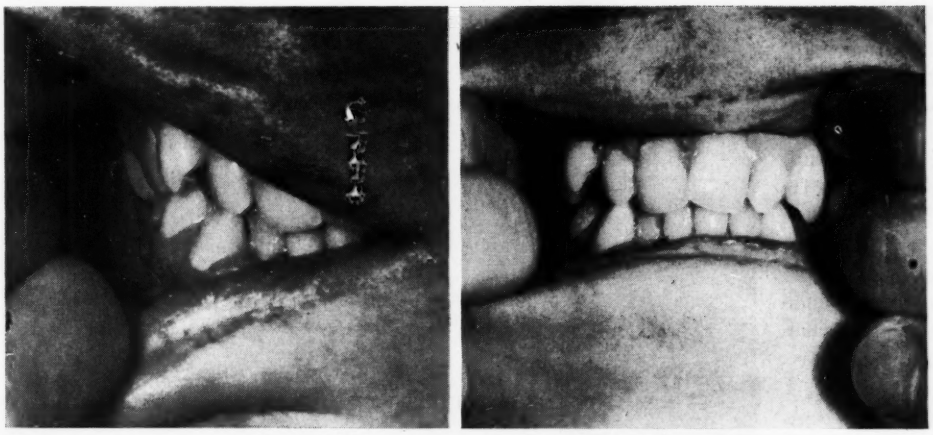
1. A type of maxillofacial injury has been discussed that presents a problem in surgical care.

2. Not only must a satisfactory cosmetic result be achieved but occlusion of the teeth must also be restored.

3. Stabilization of the fractured maxilla by wire perforating the cheek and fastened to a head-cap anchorage is far more satisfactory than the use of the cumbersome Kingsley splint.

University of Kansas Medical Center, Kansas City 3, Kansas.

4. ***Stabilization of the fractured maxilla by stainless steel wire fastened to anchorage in plaster head-cap.***



5. ***Appearance of occlusion of the teeth after reduction and fixation of fractures.***

6. ***Appearance of the patient on April 28, 1946. A satisfactory cosmetic and functional result had been obtained.***

RADIUM TREATMENT

for Carcinoma of the Palate

JOSEPH E. SCHAEFER, M.D., D.D.S.
and RALPH C. RUDDER, M.D., D.D.S., Chicago

DIGEST

In the case history presented herein radium treatment was found to be eminently satisfactory in the treatment of a malignant lesion of the palate.

Case History

In February, 1946, a 68-year-old woman presented herself for examination of the palate, with the complaint of a burning sensation in this area for the past nine months. On palpation a loss of bone structure of the hard palate was detected. Roentgenograms of the area taken in Walter's position showed a circumscribed bony defect, which was completely overlooked on the x-ray report (Fig. 1).

Results of Physical Examination

1. The general physical findings were negative.

2. There were no apparent palpable cervical lymph nodes.

Blood Count—Hemoglobin 93; red blood cells 4,960,000; white blood cells 8,650; lymphocytes 20, eosinophiles 1.

Urinalysis—Negative.

Pathologic Examination

On March 28, 1946, a biopsy was taken from this area. The specimen measured 1.0 x 1.2 x 2 centimeters and revealed salivary gland tissue and fibrous tissue in which small masses of tumor cells with a surrounding layer of keratin were found. These were interpreted to be squamous carcinoma cells.

Surgical Technique

1. On April 5, 1946, the soft tissues of the palate were reflected back through a midline incision and the nasal cavity entered.

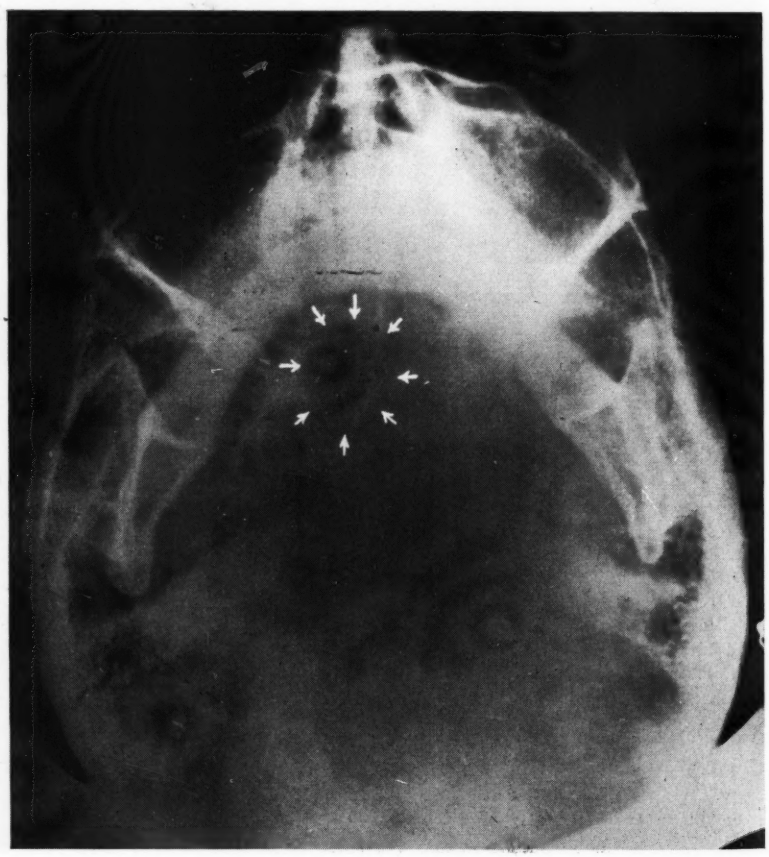
2. Four 25-milligram cylinders of radium were inserted in the involved area and allowed to remain in position for twenty hours.

Results of Surgery and Radium Treatment

1. As a result of the surgery and radium insertion, a large defect in the palate was present.

2. This defect, or opening, served as a window through which the results of the operative procedures could be observed.

3. Weekly inspections were made and when it was decided that the tumor was controlled, a denture with



1. ***Roentgenograms taken in Walter's position, showing a circular defect of the hard palate, outlined by small arrows.***

2. *Showing a defect in the palate postoperatively.*

3. *Showing the denture with obturator in position.*

4. *Denture and obturator in patient's hand.*

a palatal obturator was constructed.

Postoperative Course

After one and one-half years the carcinoma appears to be controlled.

804 *West 79th Street.*

25 *East Washington Street.*

OLIGOSIALIA

Case Report

A woman 74 years of age has the chief complaint of dryness of the mouth. What saliva there is, is thick, tenacious, and mucoid.

History

1. In April 1947 she had purulent bilateral parotiditis. This cleared up with penicillin treatment but has left the patient as described.

2. She has had a variety of treatments including: (1) gargles and sprays, (2) pilocarpine capsules, (3) potassium iodide, (4) ammonium chloride and throat lozenges, and (5) the usual home remedies, chewing gum, sweet candies, and lemon juice.

3. Roentgenograms fail to reveal any calculi in the glands or in their ducts.

4. Autogenous vaccine was suggested and tried without apparent benefit.

Causes

1. The parotid infection, plus the age of the patient, would seem to be the cause of the xerostomia and oligosialia.

2. It would seem necessary to rule out only a few other causes: (1) the use of medications containing belladonna, (2) the presence of diabetes or chronic nephritis, (3) evidence of autonomic imbalance, and (4) the use of an astringent mouth wash.

Treatment

1. The best drug to use as a test or treatment is neostigmine bromide.

2. It is also suggested (1) that the general health be improved and (2) that the oral condition be treated with local therapy and vitamin concentrates.

From Queries and Minor Notes, *Journal of the American Medical Association* **140**:929 (July 9) 1949.

HYDROCOLLOIDS

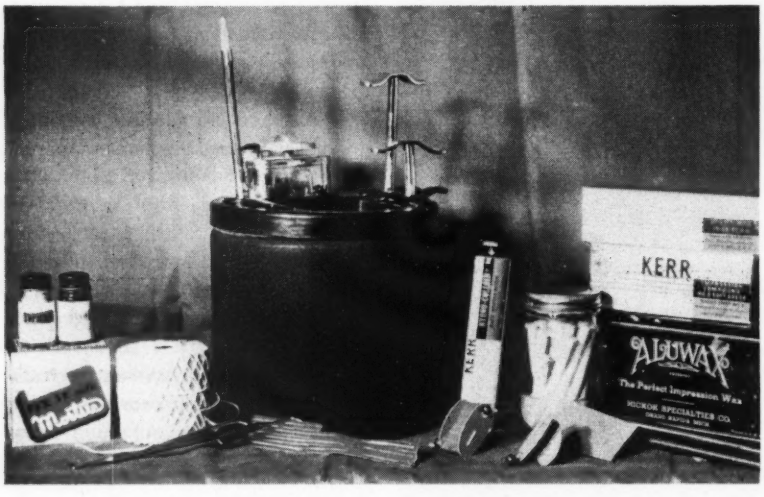
for Indirect Inlays

JACOB SCHAFFER, D.D.S., Newark, N.J.

DIGEST

The writer of this article had relied on the direct pattern technique in gold inlay construction for many years; meanwhile he experimented with various indirect techniques searching for one that would give the same results but that could be achieved without the tension and difficulties often encountered in the direct pattern technique.

After considerable experimentation and thorough investigation of the many aspects of the indirect technique, the author concluded that the hydrocolloids, when properly used, are an indispensable aid in the construction of inlays and bridges.



1. *A heater equipped with a thermometer and divided to provide for tubes of hydrocolloid and two syringes, one with a 19-gauge canula and one with a 21 or 23-gauge canula. Kite cord and sharp scissors with which to cut it when the cord is placed around the tooth. Hydrocolloids in tubes with dispensing tops and cartridges for the syringe. Low fusing compound, utility wax or mortite for rimming trays to contain hydrocolloid. Condite bite-rim with semi-soft wax for bite. Aluwax, a soft wax for rebasing the counterbite. Trisol, a nonescharotic astringent for shrinking cervical tissue; and topiclot, a hemostatic to stop bleeding when necessary.*

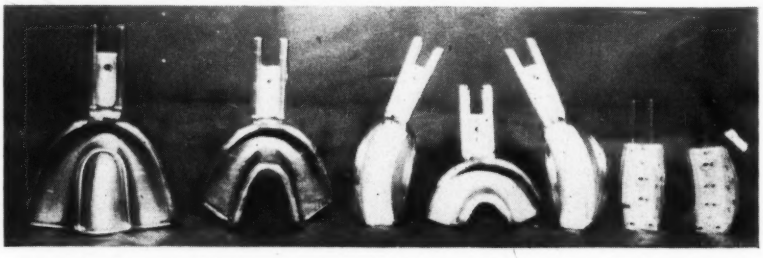
2. *An assortment of water cooled trays.*

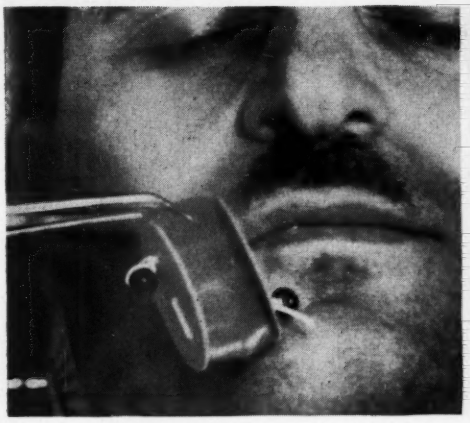
The Advantages of the Indirect Technique

1. There is less tension involved for patient and operator.
2. Less chair time is required for taking the impression.
3. Less chair time is required at the time of finishing.
4. The indirect technique permits the construction of a series of multiple inlays, crowns, and fixed bridges.
5. Any combination of inlays and crowns in conjunction with raising and balancing of the bite in precision removable bridges is possible.
6. Accurate impressions of undercuts can be secured without distortion which is especially necessary in impressions of anterior teeth and bell-shaped posteriors.
7. Removal from mouth in one piece is possible.
8. Fixed bridges can be constructed at one time.
9. Paralleling boxes for removable precision bridges is simplified.

Advantage in the Use of Hydrocolloids—The material can be used regardless of the type of cavity preparation but (1) the operator should guard against undercuts and (2) in case of bridge construction the operator should be sure that the abutment walls are parallel.

Characteristics of the Material—Hydrocolloid material can only be





3. *Condit bite wafer, a semi-soft sandwich with cellophane, supported by cardboard and tied with cord. The bite relationship is of utmost importance in order to avoid occlusal disharmony. The bite is always taken before the impression and tissue retraction which helps to clear the cavity of debris.*

4. *Softened bite wafer placed between teeth. Pressure is applied by pulling the cord.*

5. *The cardboard sides are now cut down as they have a tendency to distort relationship.*

6. *Aluwax is melted into the counterbite side of the bite wafer and then replaced between the teeth to ensure undistorted relationship.*

7. *Shows counterbite surface after rebasing with aluwax.*

8. *Application of kite cord to tie back gingival tissue. After tying, push back with pointed instrument.*

used in cases where the complete cavity surface is exposed to view for the reason that it has no compressive quality and will not push the gingival tissue away from the cavity margin. The cavity margin can, therefore, be revealed in the following ways:

1. By the use of cautery.
2. By packing overnight.
3. The gingiva can be tied back with dental tape or kite cord.
4. Astringents such as trisol or zinc chloride can be used.
5. In a deep cavity a bit of cord impregnated with zinc chloride and eugenol and then packed with base plate gu ta percha will succeed with stubborn cases.

Procedure for Taking the Impression

1. After trying the tray, rim it with mortite, utility wax, or soft green compound for single inlays. This rimming is to form (a) a seal over the mucous membrane and (b) stops to prevent the tray from riding on the teeth. The impression should include several teeth anterior to the preparation and several posterior to it.
2. After the tray has been rimmed and properly prepared, isolate a section of the mouth and keep it dry. All margins are exposed.
3. Use a hydrocolloid syringe with a 19-gauge needle for all inlay techniques and a syringe with a 23-gauge needle for all pits.

9. *The teeth under consideration are tied back. Knots are on the buccal side.*

10. *Trying in the tray for size and position. One or more teeth anterior, and one or more teeth posterior to the area under consideration should be included.*

11. *Rimming the tray with mortite. Low fusing compound or utility wax can be used instead. This helps to contain the hydrocolloid and also acts as an occlusal stop when taking the impression.*

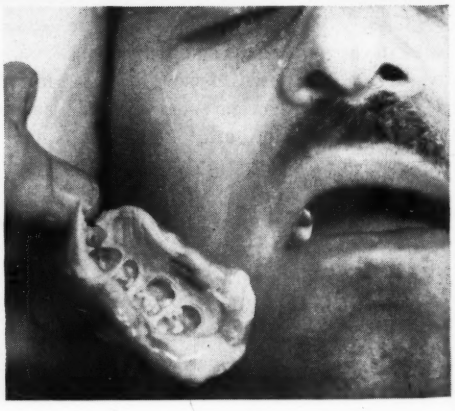
12. *Loading the rimmed tray with hydrocolloid from the tube.*

13. *Covering preparation which must be dried and isolated; and hydrocolloid used with syringe. Keep canula up against the walls and follow through by going over all parts of the preparation. If pits and grooves are present, use a 23-gauge canula.*

14. *Shows the amount of hydrocolloid that is deposited with the syringe.*

15. *The loaded tray held in position and the tray cooled through the water jacket; utmost precaution must be exercised to avoid any movement at this time.*

16. *Finished impression of the complete quadrant.*



17. ***Vibrate a good die-stone which has been mixed to a putty-like consistency into the dried impression.***

(The syringe with the 23-gauge needle may have a tendency to clog up; this can be avoided by taking the needle apart and cleaning it. After refilling, boil the needle for a minimum of ten minutes, being careful not to let it chill afterward.)

4. Before using the syringe, load the tray with hydrocolloid and allow it to chill while using the syringe in the mouth.

5. Insert the loaded tray into the mouth and hold it steady for at least three minutes. Remove the tray in a straight direction.

6. Dry the impression and pour immediately with die-stone. The die-stone should be mixed to a putty-like consistency and vibrated into the impression. Extreme care must be used not to trap air during the process of vibration. Then place the tray in a

18. ***Pour the counterbite at the same time.***

humidor or water until the die-stone is set.

7. After the model has been separated from the tray, smooth the base and pour the matrix. This step may be omitted if two impressions are taken and two models poured.

8. Separate the prepared teeth from the rest of the model.

9. Soak in thin oil.

10. Blow off excess oil and melt wax into the prepared teeth.

11. Remove the wax pattern from the model.

12. Sprue and invest.

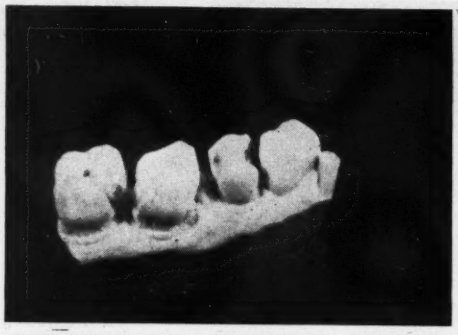
Investing Technique

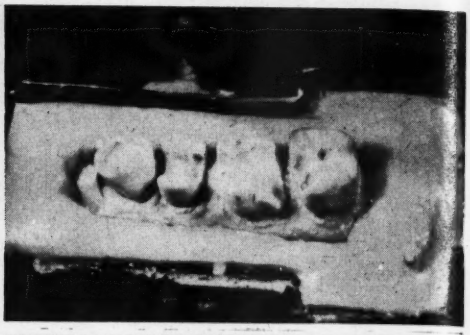
1. Any one of the time-tested methods of investing the wax pattern may be used.

2. After the castings are made, the sprues should be cut off, and the castings placed on the dies.

19. ***To guard against hydrocolloid loss of moisture place the poured impression in a humidor or in water to set.***

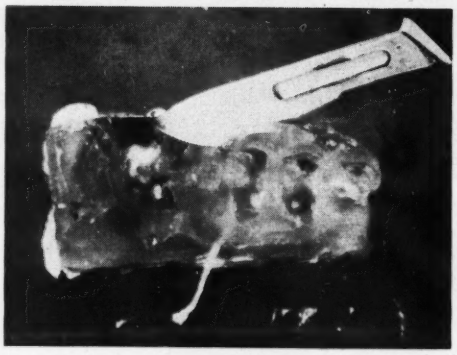
20. *The model with the base trimmed.*

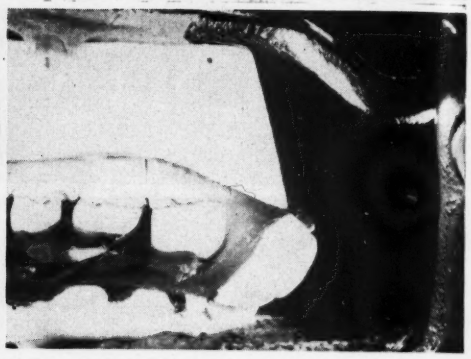




21. *The model in a plaster matrix.*

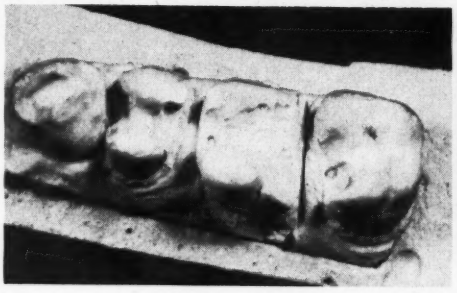
22. *Cutting down the bite before articulating prevents distortion or wrong assembly.*

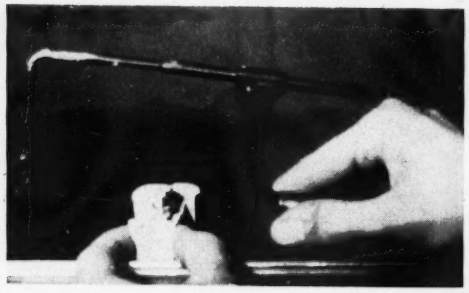




23. *Articulating with a simple articulator.*

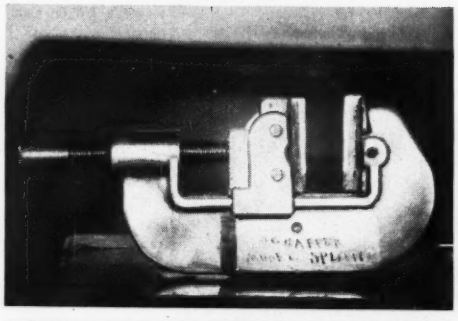
24. *The model in the dry state before splitting apart.*

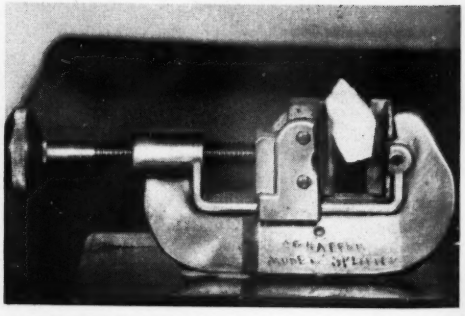




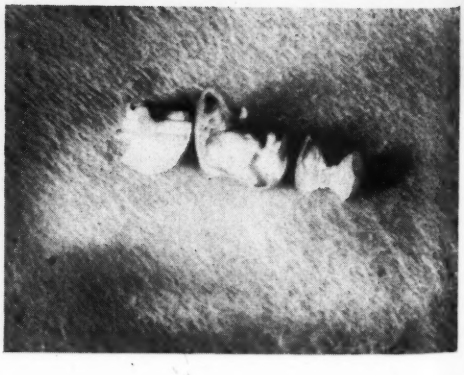
25. *Sawing 1/8 inch between the prepared teeth.*

26. *The model splitter.*





27. *Place the model between the blades of the model splitter and obtain three separate segments to be handled as individual models.*

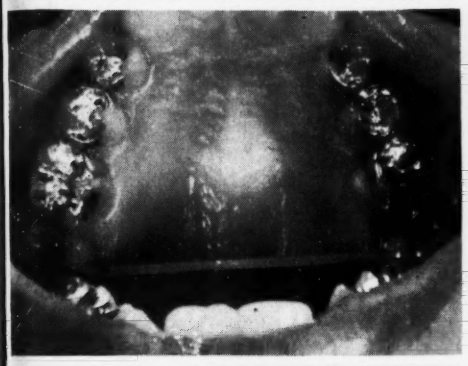


28. *Models after splitting and after oil immersion. Use extremely light oil. The oil is then blown off and wax is melted on to the dies for patterns.*

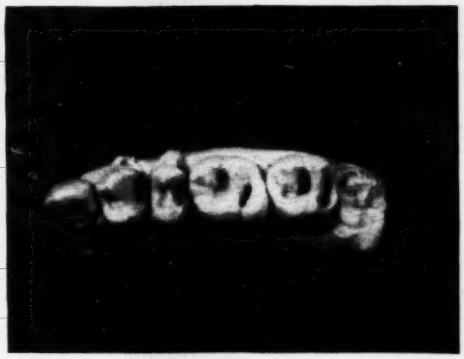
29. *Internal view of cast inlays.*

30. *Polished inlays on model.*

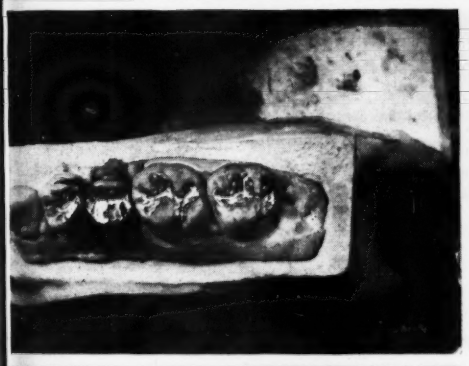
31. *Inlays in the mouth after cementation.*



32. *Two quadrants are done at one time.*



33. *Model, showing a series of preparations.*



34. *Inlays on the model shown in Figure 33.*

35. *Inlays after cementation in the mouth.*

36. *Model of two highly involved preparations.*

37. *Polished inlays on the model shown in Figure 36.*

3. At this time attention is given to the occlusion and the contact, although little polishing is done.

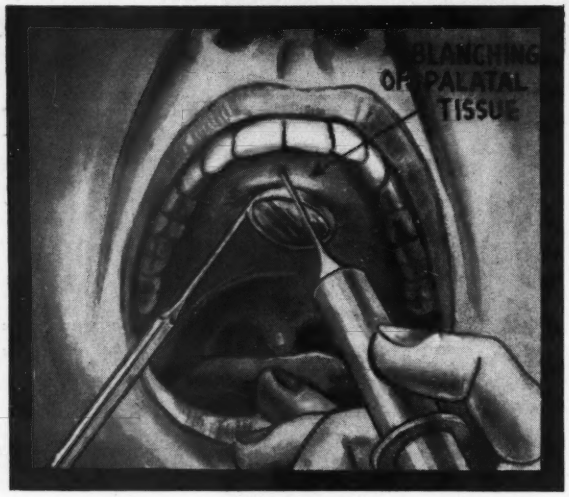
4. It is helpful to try the casting in the mouth because by being careful with the waxing-up process there is little need for outside polishing; if an occlusal adjustment involves an occlusal margin, the author prefers to do so on the tooth.

Conclusion

1. With the direct pattern technique progress was much slower and accompanied by tension for both the patient and the operator.

2. By using the indirect technique described the author now cements to place as many as five or six inlays in the same quadrant of the mouth at the same time.

The Medical Tower.



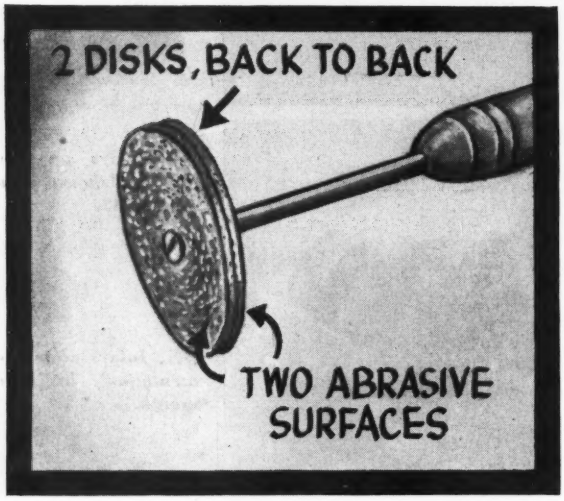
1

Clinical and Laborato

Painless Palatal Injection

William Granirer, D.D.S., Far Rockaway, N.Y.

1. Prior to the insertion of the needle for palatal injection, press the edge of a mouth mirror into the tissue slightly below the injection site. The pressure will blanch the tissue and will produce a mild pressure anesthesia. Insert the needle into the blanched area and inject.

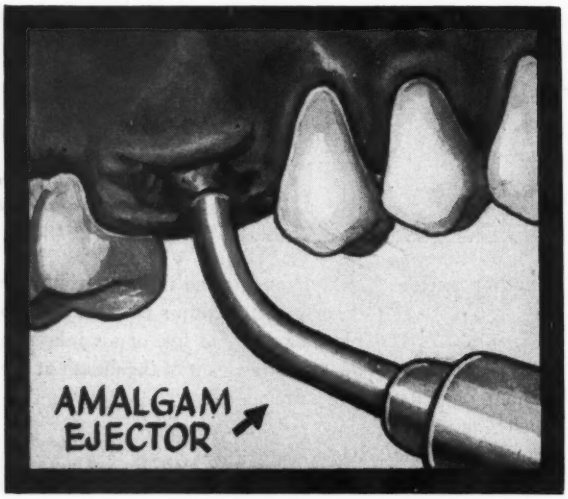


2

Polishing with Sandpaper or Cuttle Discs

Leo O. Beldo, D.D.S., Marquette, Michigan

2. When polishing with sandpaper or cuttle discs, place two discs on the mandrel. This gives two abrasive surfaces to use in polishing and also stiffens the discs.



3

Postoperative Treatment

Robert J. Williams, D.M.D., East Providence, R.I.

3. A convenient method of inserting paste into a socket for postoperative treatment is to use a sterile amalgam ejector as a carrier.

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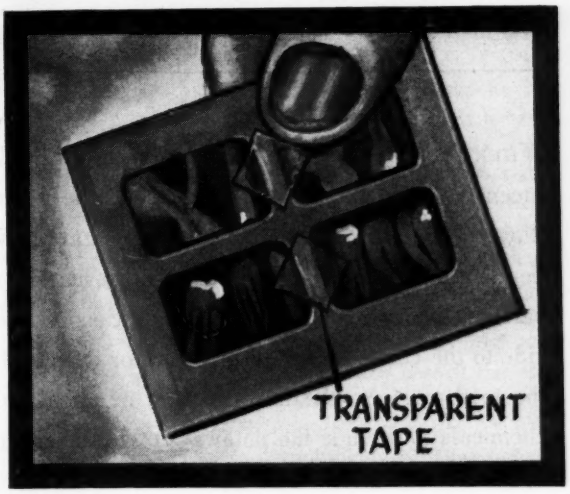
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

SUGGESTIONS . . .

Securing Films on a Holder

George Cox, D.D.S., Wilmington, Del.

4. To prevent films from getting out of place on a film holder, cut diamond-shaped pieces of transparent tape and attach them as shown in the illustration.

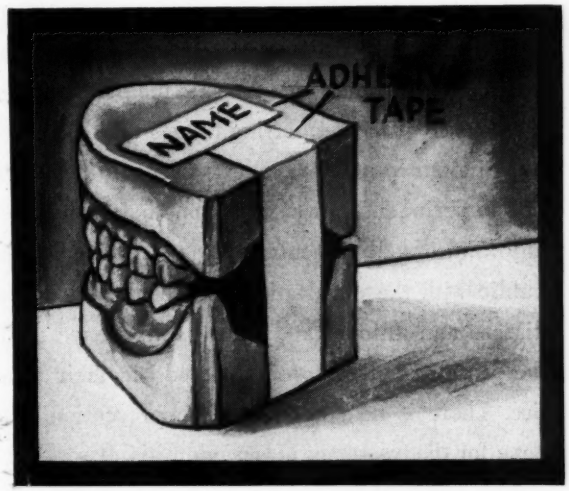


4

Holding Study Models and Casts Together

Charlotte Myers, D.A., Newark

5. By placing a piece of adhesive tape across the bottom and sides of casts or models, they do not become separated and mislaid. A paper label attached to the cast with name and date will be valuable for purposes of identification.

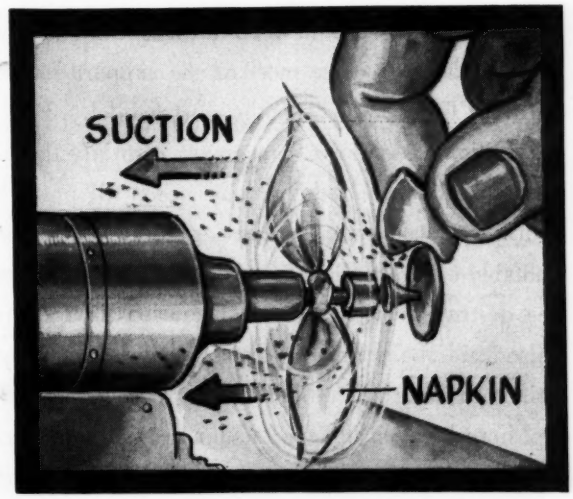


5

A Suction Device for Grinding Porcelain Teeth

Clyde W. Lee, D.D.S., San Antonio

6. Before grinding porcelain teeth, tie a dental napkin around the shaft of the motor between the motor and the chuck. When the motor is in operation this will create a suction toward the motor, preventing flying particles from striking the face.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 568 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

The EDITOR'S Page

WHEN DENTISTS speak of prevention they usually mean the prevention of caries. Most of the procedures in dental offices and most of our dental public health efforts are directed toward the prevention of caries. Dietary management, the addition of fluoride to the communal water supplies or directly to the tooth surface, the impregnation of teeth with chemicals to occlude the pathways of invasion, the ammonium-urea and chlorophyll dentifrices are all methods to control tooth decay.

Although the prevention of caries is a laudable undertaking, we should not be unmindful that there are other dental diseases and conditions that need control. Little attention is given to the prevention of the disease of the supporting tissues although most of the tooth loss among adults past middle life is due to periodontal disease. No one has undertaken any kind of public health crusade to acquaint the public with the devastating nature of periodontal disease and unfortunately few dentists have made the control of periodontitis a credo in their practice. There is no specific for the prevention, and none for the treatment of periodontitis. It would be commendable if we at least made the effort to discover one.

The diseases that develop rapidly, are overwhelming in their pain or disability—the spectacular diseases—receive most of the support for research. They also receive the most publicity. Poliomyelitis, tuberculosis, cancer are certainly dreadful conditions and their study needs all possible forms of encouragement. The degenerative diseases, notably of the cardiovascular system, are the greatest destroyers of life. The degenerative diseases are also insidious, progressive, and eat life away bit-by-bit, but with grim finality. We may discover a parallel here between the spectacular versus the degenerative diseases, caries versus periodontal disease. Caries is relatively acute, it strikes young people, it can be seen, it is likely to be painful. Periodontitis is slow in action, it strikes older people, it cannot be seen in the early stages, it is usually painless.

Our one-sided approach to dental disease prevention is vigorously stated by B. B. McCollum:[1]

"The real aim of dentistry is to attain and maintain the highest physiological condition of the mouth. Its real purpose is to keep the mouth in such a condition that it can carry on its digestive function, so that it can chew food without undergoing self-destruction. The mouth can lose its instruments not only from caries, but from wear, from malarticulation and from pyorrhea. It is the business of dentistry to intercept all these processes of destruction, and prevent them from running their full courses. The purpose of dentistry is to attain and maintain the highest physiological condition: a mouth with well-formed jaws, with sound teeth in good articulation, with all the forces applied to them equalized and distributed to the teeth so that the paradontium is not overburdened and made susceptible to disease attacks. The potential factors of mouth disintegration are plainly visible to the dentist long before the patient is aware of them, many times 10 or 15 years. I am not suggesting that we indulge in meddlesome interference, but our eyes should be open all the time to catch the potential factors before they have done irreparable damage."

Prevention, prophylaxis, control should imply the evaluation of *all* forms of dental diseases and dysfunction. Again McCollum warns us:

"The human mouth, no matter how well developed, undergoes disintegration. It ultimately wears out, no matter how well-formed or how well-instrumented with teeth, or how highly resistant to disease."

[1]McCollum, B. B.: Prevention, the Key to Future Dentistry, South. California Sta. D.A.J. **16**:20-21 (October) 1949.

MEDICINE and the Biologic Sciences

Rh Sensitization

It is now generally recognized that transfusions or even intramuscular injections of Rh-positive blood are far more potent in sensitizing Rh-negative persons than is pregnancy with Rh-positive fetuses.

Only one of about twenty-five Rh-negative women bearing Rh-positive babies becomes sensitized to the Rh factor. Fully one-half of such persons can be sensitized by injections of Rh-positive blood. This reaction is readily explained by the difference in the quantity of antigen injected.

The injection of serum or plasma into the Rh-negative women may create Rh sensitization. The hazard of such injections is at times as great as that accompanying the injection of Rh-positive whole blood. Such procedures may deprive even primiparas of the opportunity of having normal babies.

It is essential that obstetric case histories include the information that these patients have received such injections. Likewise it is important to exercise care and discretion in the use of these substances.

Wallace, J. T.; Wiener, A.; and Doyle, Margaret H.: Rh Sensitization in Primipara Caused by Intramuscular Injection of Human Serum Resulting in Fatal Erythroblastosis, Am. J. Obst. & Gynec. **56**:1156-1158 (*December*) 1948.

Patient Confidence

In dealing with patients the dentist can profit by noting the following essentials used by the physician in dealing with psychoneurotic patients:

1. Diagnosis must always precede intelligent treatment. This requires a medical history adequate to the problem presented by the individual patient.

2. The establishment of the patient's confidence. When the patient observes that the examination is conscientious and careful, he can believe that the doctor will take a sincere interest in his case. Furthermore, the patient's knowledge that his clinical examination has been thorough will permit him to believe, later, that the doctor knows what he is talking about when reassurance is begun.

3. Fear and apprehension must be dispelled. The patient's apprehension about what his symptoms may mean, rather than the severity of the symptoms themselves, is often the reason he consults the doctor. The mere presence of the physician at the scene of a medical emergency frequently does more to soothe the patient and control the situation than do the treatments administered.

And yet it too often happens that the doctor causes more fear than he allays. An unethical practitioner may deliberately arouse anxiety in order to sell the patient an expensive treatment "procedure." However, even the most honest and ethical doctor may inspire fear unwittingly by "quibbling."

The term quibbling refers to the reluctance of many physicians to tell patients the simple truth. Too often the doctor uses the phrase, "may contribute." He is the doctor and he is the one to state whether or not a given somatic finding does contribute—and if so, how much—to the general symptomatology of which the patient complains. His honest opinion is all that is wanted.

A doctor sometimes thinks he is being honest, when actually if he reflected he would know that he was merely avoiding a troublesome task by wishful thinking and rationalization. Rationalization often corrects minor ailments while the major complaint becomes more ingrained. Meantime the patient's insight into his emotional life becomes obscured by the new issues which absorb the attention of the doctor.

If reassurance is complete (if the patient is thoroughly convinced that his fears are unfounded) it is sometimes sufficient to cure him. Conjecturing and anxiety on the part of the patient can be prevented if the doctor will take the time to tell the patient two things, (1) not only what is *not* wrong with him but (2) what *is* wrong with him.

Alexander, E. J.: Psychotherapy Reviewed, J. Michigan M. Soc. **48**:697-706 (*June*) 1949.

Surgery in Older Patients

The surgical risk in elderly patients has been lessened during the past few years by numerous factors. Beginning with the history and physical examination and including the anesthesia and preoperative and postoperative care, every item must be painstakingly carried out.

In this age group, there is a necessity for team work between the surgeon, internists, and other specialists. Preliminary examination should include an estimate of the functional capacity of the cardiovascular and renal systems.

There is a great need of complete preoperative care and rehabilitation. Protein deficiency should be corrected preoperatively and prevented postoperatively by supplying protein in excess of the normal daily requirement of about 1 gram of protein for each kilogram of body weight, that is, 50 to 100 grams. Replacement is best accomplished by the oral route, but often this is not possible and the parenteral administration of plasma

and amino acid mixtures must be resorted to.

The elderly patients should be maintained in relative water and electrolyte balance, but particular attention must be exercised to avoid overhydration. If there is any evidence of impaired renal function, lactated Ringer's solution should be used in place of isotonic sodium chloride solutions.

There is pressing need for transfusions to replace blood loss and maintain normal blood values. Acute cholecystitis and internal hemorrhage present specific problems in the elderly. Immediate or early cholecystectomy or drainage should be done. Because of arteriosclerosis, hemorrhage is more likely to continue to exsanguination so that its management demands more radical treatment.

Mortality and morbidity can be materially decreased with (1) improved techniques, (2) proper nutrition, and (3) judicious use of the modern drugs.

Bisgard, J. D.: Reduction of Surgical Risk in Operations on Elderly Patients, Geriatrics **4**:22-24 (Jan.-Feb.) 1949.

Antiseptic Agents—Properties

The ideal antiseptic agent does not exist at the present time. It would be powerfully germicidal against all pathogenic bacteria in the bodily environment in which its action was required but would at the same time be completely inactive against the tissues of the body.

Other desirable characteristics should include:

1. Physical properties: The antiseptic substance should be available in a form permitting rapid delivery and easy access to the area needed. This means that it must be (1) soluble in tissue fluids well beyond effective levels, (2) capable of penetrating beyond tissue exudates to the site of proliferation of the offending organisms, and (3) the vehicle in which it is incorporated for application must be inert but must release the substance in effective concentrations.

2. The substance should be stable on exposure to light, air, and changes of temperature and humidity. It must also be capable of being transported without decomposition.

3. The antiseptic should lack any tendency to irritate tissues when it is applied locally or to cause any adverse reaction when it is administered systematically.

4. The agent should be easily removed from wounds or from dressings when it is applied locally.

5. The antiseptic substance should be comparatively easy to prepare and the cost both of the constituents and of the process of preparation should be low enough to make it generally available.

The duration of exposure of the organisms for a given infection to the antiseptic agent used to control them is intimately related to the concentration of the agent. It is an established fact that if concentration is increased, less time is required for germicidal action by an effective agent. There is, however, a considerable variation in the speed of action of the various antiseptics. The hypochlorites and peroxide of hydrogen act quite rapidly as compared with the heavy metals and even more rapidly as compared with the sulfonamides, which act quite slowly.

The temperature at which an antiseptic or disinfectant is employed plays a part in its efficiency. A high temperature increases germicidal potency. However, this is chiefly theoretical as it is not feasible to use antiseptics at high temperatures in vivo.

The mode of application is related both to concentration and duration of exposure. A mouthwash which remains in contact with the tissues for only a brief time must be of such concentration and efficacy as to kill bacteria promptly. An ointment, on the other hand, which remains in contact with the tissues for a considerable period of time may be of lower concentration. The antiseptic action of ointments is, however, frequently limited to the prevention of multiplication of bacteria.

The problems: (1) How can the agent be applied to an area so as to exert maximum effect, and (2) how can it be maintained in the area long enough to achieve the desired result must be considered. Both have to do with the vehicle in which the antiseptic is applied. Aqueous solutions usually provide maximum antibacterial action but drying is slow which lessens their usefulness in the preparation of the skin for operation. When alcohol is used as the vehicle, evaporation is rapid and drying correspondingly rapid, but otherwise alcohol has few advantages over water. Generally speaking, any vehicle other than water causes some loss of antiseptic power, though this loss may be deliberately assumed because the vehicle employed results in greater solubility or reduces toxicity.

Pulaski, Edwin J.: A Study of Vehicles and Adjuvants for the Sulfonamides and Penicillin, Surgery **25**:681-710 (May) 1949.

The Dysenteries

The dysenteries may be broadly classified as due (1) to food poisoning, (2) to bacterial infections of the lower gastrointestinal tract (bacillary dysentery), and (3) to amebiasis.

The most frequent type of food poisoning in the United States is that due to enterotoxin produced by growth of certain staphylococci. It is a true intoxication and not primarily an intestinal infection. Diagnostic features are (1) short incubation period and (2) history of eating a suspected food. Duration is short and treatment is symptomatic.

Food poisoning due to the salmonella organism is a true bacterial infection. This type of poisoning results from ingestion of contaminated food, usually a meat product. Diagnostic features are long incubation period and the fact that other persons who ingested the contaminated food became ill. The clinical picture resembles mild typhoid fever. Treatment is symptomatic and chemotherapeutic.

Bacillary dysentery is an infectious disease caused by several members of the genus Shigella. There are three

main groups: (1) *S. dysenteriae,* the *S. bacillus* and *S. ambigua,* the *Schmitz bacillus,* (2) *S. paradysenteriae,* the Flexner and Boyd types, (3) *S. sonnei* , the *Sonne, Duval bacillus.*

The Shiga bacillus produces severe epidemics usually in the tropics and subtropics. It produces a powerful exotoxin. The Flexner organism is commonest in the United States. It causes a milder, less severe form of the disease and does not produce an exotoxin.

Bacillary dysentery is spread by contamination of food and water by the feces of infected persons. Clinical manifestations vary from mild diarrhea to severe disease resembling cholera. Chronic bacillary dysentery results from prolonged infection of the colon with the bacillus, lasting over several months or years.

The definitive diagnosis of bacillary dysentery is based on isolation of the organism by culture of fresh stools or material wiped directly from the rectal or colonic mucosa during sigmoidoscopy. (Diagnosis may be made presumptively if the stool is a sticky homogeneous mixture of blood, pus, and mucus resembling "red currant jelly."

Indications are:

1. Symptomatic and supportive therapy, chemotherapy and serum therapy. 2. Abundant intake of liquid or soft diet with a high caloric value and containing at least the minimal daily protein requirements.

Amebiasis is a protozoan infection of man which initially is an enteric infection but may give rise to foci of infection elsewhere in the body, especially in the liver and lungs. The infection is acquired in man by ingestion of *Endamoeba histolytica.* The trophozoite form invades the host's tissues and causes the damage. The encysted form is not invasive but is infective.

The clinical picture varies considerably and depends on (1) localization of the amebas and (2) intensity of the infection. Person with asymptomatic infections or carriers usually have few symptoms, but dysentery apparently may develop whenever the general health is impaired. Diagnosis in this type of amebiasis depends entirely on demonstration of cysts of *E. histolytica* in the stools.

Acute amebic dysentery has a more definite clinical picture including the following characteristics: 1. An incubation period of two to twelve weeks, followed by sudden onset of abdominal pains, vomiting, tenesmus, chilliness, and temperature elevation to about 102° Fahrenheit. 2. Semiformed stools which rapidly become liquid and contain bloody mucus. 3. Finally, the development of an almost continuous rectal discharge of blood-stained mucus and shreds of mucosa, exhaustion, lumbar aching, weakness of the legs, and mental depression.

Examination of fresh stool is the most important diagnostic method in all forms of amebiasis. The usual routine of therapy is as follows: 1. Emetine hydrochloride, total of 0.3 or 0.36 gram in divided doses of 0.065 gram daily is usually adequate for the asymptomatic cyst passer or the patient with mild amebic diarrhea. 2. For acute dysentery or hepatitis, emetine is given up to the total dose of 0.6 gram. 3. Simultaneously, 0.5 to 0.75 gram chiniofon three times daily for ten days and 1 gram sulfadiazone every four hours for a total of 20 grams are recommended. 4. After chiniofon administration, 0.25 gram carbarsone is given three times daily for ten days. Some cases require considerable time to become entirely ameba free.

Pollard, H. Marvin, and Block, Malcolm: The Dysenteries, The Am. Pract. **2**:151-158 (March) 1947.

Wright, A. W., and Coombes, A. E. R.: Treatment of Amebic Dysentery, Lancet **1**:243-246 (February 14) 1948.

Toxic Level of Fluorine in Water

It appears that fluorine as related to tooth decay has not had the exhaustive study that dental fluorosis has had. There are several areas in the United States where the water has a natural fluorine content of 1 part per million. In some of these areas a mild to moderate defect in the enamel of the secondary teeth is noted in about 18 per cent of the children.

There is no absolute and definite agreement among investigators as to the minimum toxic dose of fluorine with respect to dental fluorosis. Doctor Smith and his associates at the University of Arizona have dropped their level to 0.8 parts per million. They believe that with the increased use of fluorine sprays for fruit trees, the possibility for ingestion of fluorine is greatly increased. They also state that mild mottling of the enamel is possible if fruit from these sprayed areas is consistently eaten. This is true even though there is fluorine in the drinking water.

Another factor to consider is the volume of water drunk. If the consumption of water is twice the usual amount, there would be an increase in the incidence of dental fluorosis. It is logical to assume that in hot and dry areas more water would be drunk.

The conclusions of Doctor Badger are interesting and worthy of consideration:

(1) If fluorine is added to the municipal water supplies, the level should be lowered to 0.7 parts per million.

(2) If the level of fluorine is above 0.7 parts per million, children under three years of age and preferably under six, should use filtered or distilled water in order to prevent a defect in their permanent teeth from forming during these years.

(3) The damage from the ingestion of fluorine comes during the calcification of the secondary teeth which occurs during the first six years of life (with the exception of the second and third molars) and during this period tooth decay is not important. (This statement certainly is open to discussion when all factors of growth and development are considered). Therefore there should be a chronologic division of the population as to when fluorine is used.

(4) From his study, dental fluorosis does occur at a fluorine level of 0.9 parts per million.

Badger, Demarious C.: Toxic Level of Fluorine in Water Supplies, Am. J. Dis. Child. **78**:72-76 (July) 1949.

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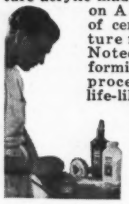

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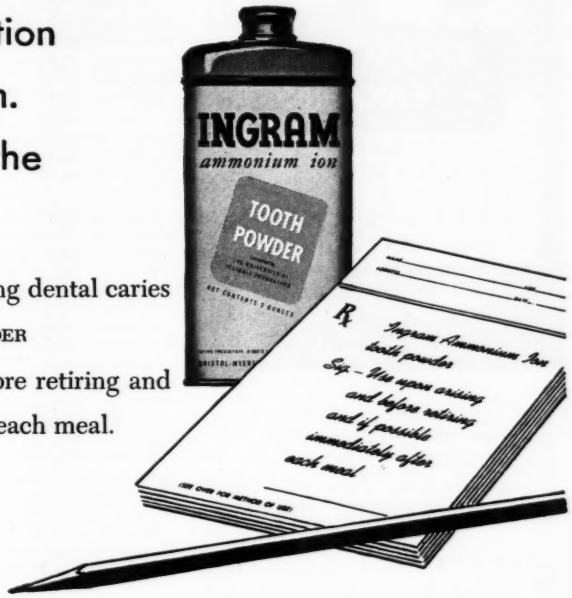
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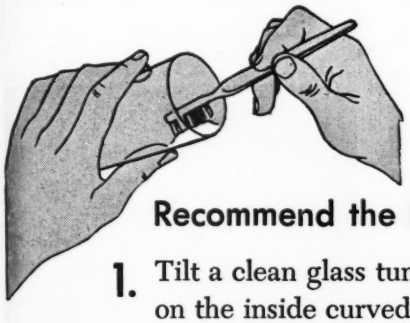

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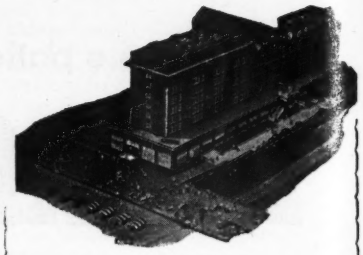

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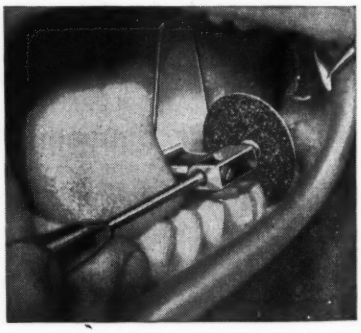

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The British publications still have a place for the scholarly essay. In fact, the lead article in the *British Medical Journal* is often a piece of fine writing that has little to do with the practice of medicine except so far as medicine is an art that is close to the lives of people. For example, this piece on the use of experience by Sir Heneage Ogilvie,[1] Surgeon to Guy's Hospital:

"We are constantly receiving impressions by all our senses—by touch, sight, sound, taste, and smell—and all these impressions are experience. The baby starts to convert experience into knowledge: before it can talk it is already grouping impressions by their likeness or their difference, and forming vague conceptions like 'mother,' 'food and hunger,' 'dangerous and friendly.' The growing child, the adolescent, the grown man and woman, continue the same process. Impressions crowd in upon them, giving them the raw material—experience—in the factory of the mind.

"Experience comes to all. It comes equally to rich and poor, old and young, just and unjust. Yet some learn from it no more than a reflex existence, the knowledge to eat and

[1]Ogilvie, Sir Heneage: The Use of Experience, British Medical Journal (September 24) 1949.

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(*See pages* 556 *and* 557)

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sleep and breed, to read the thoughts of others on the printed page or live the emotions of others on the lighted screen, to exchange a small assortment of hackneyed phrases with other robots. Some build up knowledge and become wise: they develop a personal outlook that enriches others and adds to the store of their time. The reason for these differences lies not in the quality of the seed but in that of the soil on which it falls. Impressions are fleeting things. They cannot live unless they are welcomed, studied, compared, classified, and grouped. Experience can be made useful only by certain qualities of the mind, some given by inheritance, some by parental example, some by the influence of teachers or writers.

"People fail to learn from experience for three reasons. First, because they have not learned the habit of thought. They bolt their impressions without savoring them as a dog bolts his food. They do not take their raw material into the factory, but let it pass straight from the delivery gate to the refuse dump. They never classify—that is, they never say to themselves, 'Something like this happened before in the same circumstances.' Thus they never take the next step, from experience to experiment, to deciding by repeating the circumstances, whether the likeness observed between two experiences was an accident or a consequence.

"Secondly, because they have classified too much, or rather because they have allowed their habits of thought to become automatic, they have organized their factory for mass production, so that it cannot deal with the unusual order.

"Thirdly, because, having made the whole of one branch of knowledge their province, they fail to attain that last achievement of education, the knowledge of where their experience is inadequate, of where their knowledge ceases and their ignorance begins. Having acquired supreme mastery of one department of learning they are apt to assume that the whole is theirs, to forget that the highest wisdom is the realization that no man can know everything, that he is indeed wisest who knows his ignorance

and where to turn for help when he needs it. One of the greatest physicists since Newton died needlessly and before his time because he treated his own strangulated hernia with household remedies and turned only many hours too late to those who had made such ailments their life's study and who could have saved him.

"Where so many fail, how are we, who wish to do better than the plodders but can never hope to catch the leaders, to make the best use of the experience that life offers to us? Most of us realize that such use as we have made of experience has been due to chance rather than to conscious planning on our part. Most of us cherish the belief that were we to start again on a well-designed and documented system we should get much further. We can, however, agree on certain broad principles.

"*First*, we should make our experience as rich and as varied as we can; not hunting sensations, for the conscious search for new stimuli soon deadens the ability to receive any and abolishes that eager scrutiny with which we should examine those fresh experiences that come naturally, but welcoming experiences from whatever source. We should keep our receptors uncovered and sensitive. We should not refuse to see, hear, touch, or taste anything because we have been warned against it or because it comes to us in unpalatable guise.

"*Secondly*, we should examine each fresh experience with careful scrutiny and an open mind. Even though it be one of a group with which we are already well familiar, does this one contain anything new? Does it repeat and confirm the category to which we had already allotted the others, or does it bring some fresh aspect which should impel us to pull the others out of their pigeon-hole and look at them again?

"*Thirdly*, having examined and accepted it we should turn it over more carefully in our minds, appraise it, classify it, and allot it to one of the trays on our mental desk—'action,' 'pending,' or 'finished.'

"*Fourthly*, in all our use of experience we should jealously preserve our individuality. Each of us is something

In your ORAL HYGIENE this month

You must be your own public relations expert. Others can advise you but no one but you, yourself, can do the real job . . . for it's what *you* say—and do—that makes people like or dislike you, and "public relations" is just a cold text-book word for the happy human process of making friends.

Harold Ashe and Bob Downer have written an article, "Your Private and Public Relations," especially for dentists. It's a valuable check-up article—not because it gives us new facts but because it reminds us to remember—and use—the knowledge we already possess.

★ ★ ★

Here are those "neurotic patients" again. If we can't get rid of them—and apparently we can't in this anxiety-ridden world—let's classify them, understand them, and not let them make our professional lives miserable. Doctor Joseph Murray gives an excellent description of common types of neurosis which we frequently encounter in our offices. Even the "dentist's dream of the ideal patient" may turn into a nightmare, warns Doctor Murray, for pleasant docility is sometimes a symptom of neurosis. "It can do little harm," he says, "to regard every patient as a potential neurotic."

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"Big Game Hunter" is Doctor Earl J. Thee of Los Angeles, whose exploits read like the pleasant daydreams of some imaginative armchair nimrod. Whether or not you're enthusiastic about guns and hunting. you'll find Jay Uttal's article grand reading.

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Are you thinking of building or of remodeling your office? "A Professional Building for Two" contains some excellent suggestions which could easily be adapted to the individual requirements of any two men who wished to use a reception room and other facilities in common while keeping operating rooms, laboratories, and business offices entirely separated. Corrugated glass paneling does the trick in a building as modern as tomorrow.

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Dental Digest

new in this world. There has never been anything quite like us before and there never will be again; and that 'us-ness' is our most precious possession. We must look at the guidance and the knowledge we get from books and from teachers as a help but not as a directive.

"*Fifthly*, we should pause from time to time for a complete spring cleaning. We should haul out all our treasured stores of experiences, dust them, and stand back and look at them. Are they all worth keeping? Would some of them go better in another place? Do some of the bits that seemed to be disconnected when we put them away fit together now? Where have we got to? How did we get there? What lies on each side of us? How are those faring who are going along the same road? What lies ahead? Is it the right path, or have we reached a turning-point? Whichever is our goal, how do we get there?

"Lastly, we should all the time remember that we are at one stage of a journey. So far so good; or is it? A further journey and possibly better things lie ahead. As we travel we must keep a spirit of alert and adventurous inquiry. We must never look on any conclusion as final, but merely as the best we have been able to do with the material we have encountered so far. We must seek Truth, remembering that when we meet her it may be in the guise we do not expect and coming from a quarter we have despised and when we have found her we must follow her."

From such mellow writing, full of wisdom, we should gather inspiration to carry to our everyday jobs. Even in clinical practice we often fail to learn from our own experience. We make mistakes, run into the same difficulties and complications, fail to stop, look, and listen. Learning how to *stop* should mean pausing to sit down to *look* in detachment at ourselves and to *listen* to the voice from within that speaks from experience. It is hard to look at oneself with objective detachment, to compile a cold catalogue of our weakness and our strength. Although we all know that there are some things that we can do better than other things, and some things that we cannot do at all, it is ego-hurting and pride-shattering to make the unpleasant admission even to ourselves.

We are all ignorant of most things and have specialized and expert knowledge about only a few things. Because a person is experienced in one subject does not make him all-knowing. A man may be a pioneer and fly an ocean alone but this does not make him an expert on international affairs. Testimonial of a ball player or a movie star on subjects outside his field of special skill has no validity.

There is probably some fancy psychologic term for self-stretching of the ego that tempts a person to express opinions on subjects beyond the limits of his knowledge. Certainly no harm comes from speculating and philosophizing about any subject so long as we are aware that we are letting our imaginings work unimpeded.

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The danger comes when we confuse ourselves, and others, and express our speculations as pure, exact, and precise knowledge.

No progress could be made in any field unless men unlatched themselves from the accepted beliefs of the moment and let their imaginations run overtime. From this all progress comes. Although the thought may be father to the act and the vivid imagining results in knowledge gained we cannot be satisfied until we test the thought in the laboratory of action and experimentation and temper it by experience.—E.J.R.

The Treatment of Acute Ulcerative Necrotizing Gingivitis with Aureomycin

Henry H. Goldman, D.M.D. and Jack Bloom, D.D.S., Boston

THE PURPOSE of this report is to demonstrate the effectiveness of a new antibiotic, aureomycin, in the treatment of ulcerative necrotizing gingivitis.

Relevant Data

1. Heilman[1] found that on a weight-for-weight basis of the crystalline compounds, aureomycin was more effective than penicillin in the treatment of experimental infections produced by *Borrelia novyi* and *Leptospira icterohaemorrhagica*, both of which are spirochetal organisms.

2. Kierland, O'Leary, and Herrell[2] treated two patients who had syphilis and concluded that aureomycin appeared to have some antispirochetal activity when administered by the oral route.

3. Irgang and Alexander[3] treated nine patients who had syphilis, two of whom were complicated by fusospirochetal infections, and found aureomycin to be effective.

4. In one case the fusospirochetal organisms could not be demonstrated on the third day after treatment had

[1]Heilman, F. R.: Aureomycin in the treatment of Experimental Relapsing Fever and Leptospirosis Icterohaemorrhagica (Weil's Disease), Proc. Staff. Meet., Mayo Clin. **23**:569, 1948.
[2]Kierland, R. R.; O'Leary, P. D.; and Herrell, W. E.: The Oral Administration of Aureomycin (Duomycin) and Its Effect on Treponema Pallidum in Man, Proc. Staff Meet., Mayo Clin. **23**:574, 1947.
[3]Irgang, S., and Alexander, E.: Treatment of Early Syphilis with Aureomycin, Harlem Hosp. Bull. **1**:91, 1948.

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been instituted. In the second case the fusospirochetal organisms were greatly diminished in number after forty-eight hours, but not until twenty-two days after treatment had been started were smears negative for these organisms.

Rapid Response

In 15 cases of ulcerative necrotizing gingivitis treated with aureomycin the following rapid and satisfactory responses were noted:

1. Subjective symptoms were markedly decreased in two hours after the oral administration of 250 milligrams of aureomycin.

2. Complete alleviation occured after 500 milligrams.

3. Within one day there is significant involution of the lesions, while rapid healing of the ulceration occurs with resolution of the accompanying erythema.

4. In ten cases a total dosage of 2,000 milligrams, administered orally in 250-milligram doses every four hours over a two-day period (daytime intake 4 doses a day) was used with successful results.

5. In five cases a total dose of 1,000 milligrams over the same period was employed.

6. The minimum necessary dosage and duration of treatment must be fully determined.

Case History

A young man, aged 20, complained of (1) bleeding and pain of the gingivae, (2) inability to masticate for four days, and (3) of general malaise.

Examination—1. An ulcerative, necrotizing lesion affected both the interdental and marginal gingivae.

2. Ulcer formation at the interdental areas with a covering grayish-white slough was apparent.

3. A bacterial smear showed a marked predominance of Vincent's organisms.

Treatment—1. The patient received 250 milligrams of aureomycin every four hours for two days for a total dose of 2,000.

2. No other therapy was instituted.

3. After the first day all subjective symptoms had disappeared, the dosage up to that time being 1,000 milligrams.

4. Twenty-four hours later, (1) the acute objective signs had lessened, (2) the marked erythema had subsided, and (3) the interdental ulcer formation showed signs of epithelization.

5. Further healing was noted on the second day when regeneration of the interdental papillae was evident.

Summary

1. Aureomycin administered orally produces healing of the acute lesions of ulcerative necrotizing gingivitis.

2. There are numerous advantages to oral medication, especially for the dentist, and but few disadvantages.

3. Aureomycin fills the need for a new antibiotic agent in the treatment of this condition, especially for patients who are sensitive to penicillin.

4. One advantage over penicillin is the more marked reduction of the accompanying erythema.

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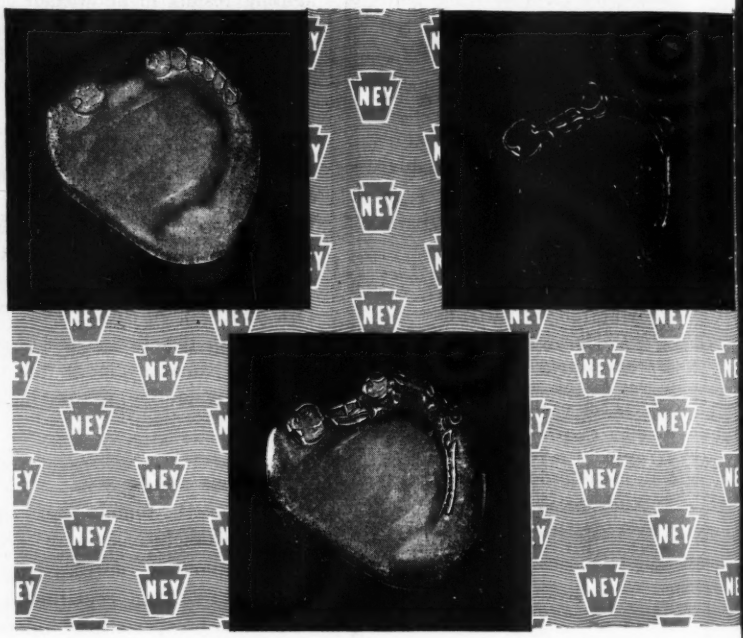
The principal thing to be learned from a study of this problem is an appreciation of the great importance of overall case design. At first glance, the lower right lateral in this mouth would appear to be a totally inadequate abutment for the long free-end saddle. Yet, by planning and designing the case so that its three clasps function together as a unit, a very successful result was obtained.

By tilting the model it is possible to develop a usable distal undercut on the lateral in order to accommodate a back-action clasp which, with its disto-labial grip, is the best choice for holding the free-end saddle securely against



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the ridge. Retention is augmented by the lingual arm of the molar ring clasp in its undercut and by the buccal portion of the bicuspid back-action clasp in *its* undercut. In other words, all of these clasps are working together to solve the problem of adequate retention. Similarly, each one provides its own proportion of the total bracing and support which the case also needs in order to be a functional success.

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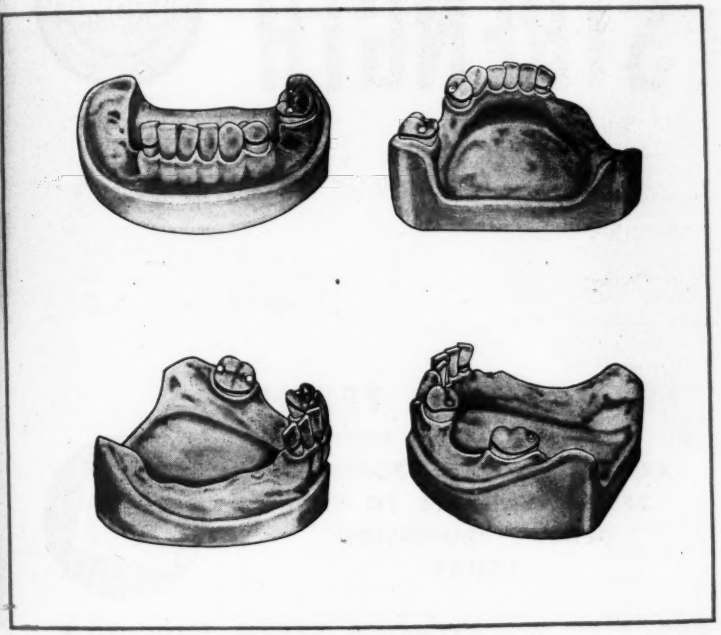

The four drawings illustrate the undercuts finally selected after experimental tilting of the model to arrive at the most favorable clasping conditions for the overall case design.

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From *Oral Surgery, Oral Medicine,* and *Oral Pathology* **2**:1128-1130 (September) 1949.

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Charles Davy, London

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(*Continued on page* 576)

[1]Strauss, E. B.: Intractable Pain, Brit. M. J. (August 20, p. 411) 1949.

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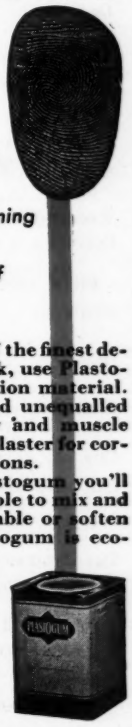

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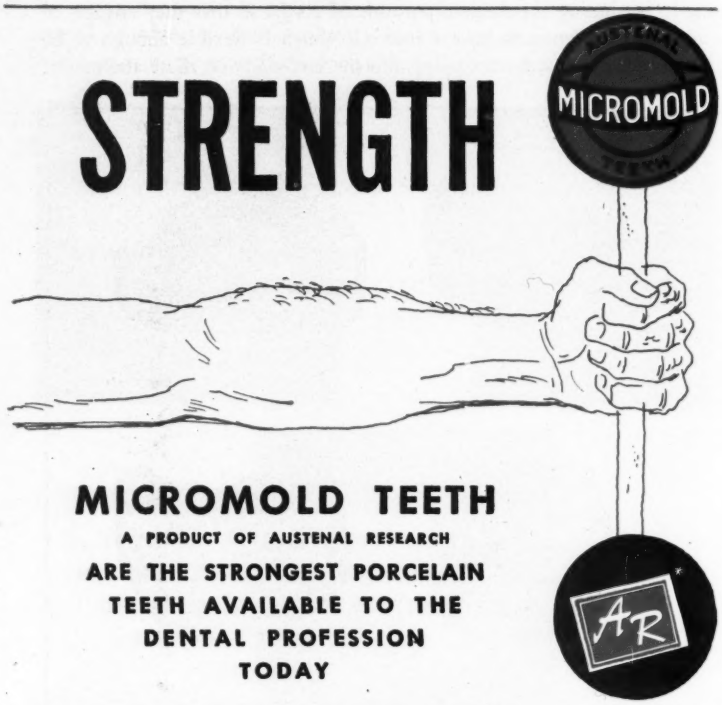

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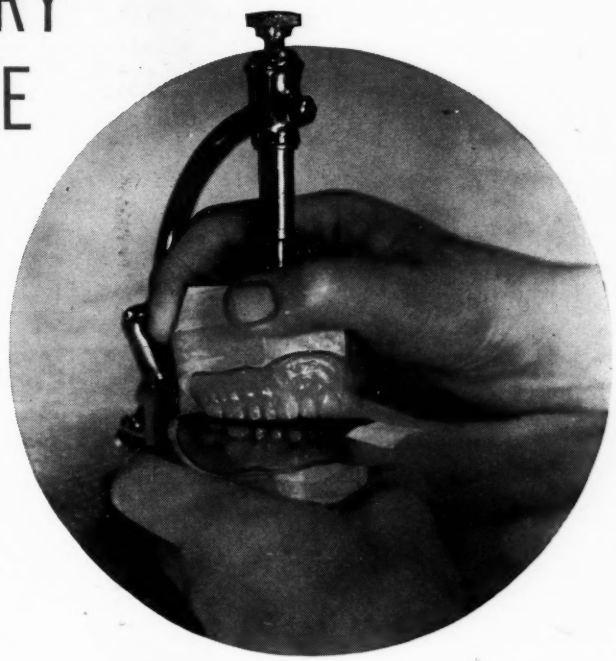

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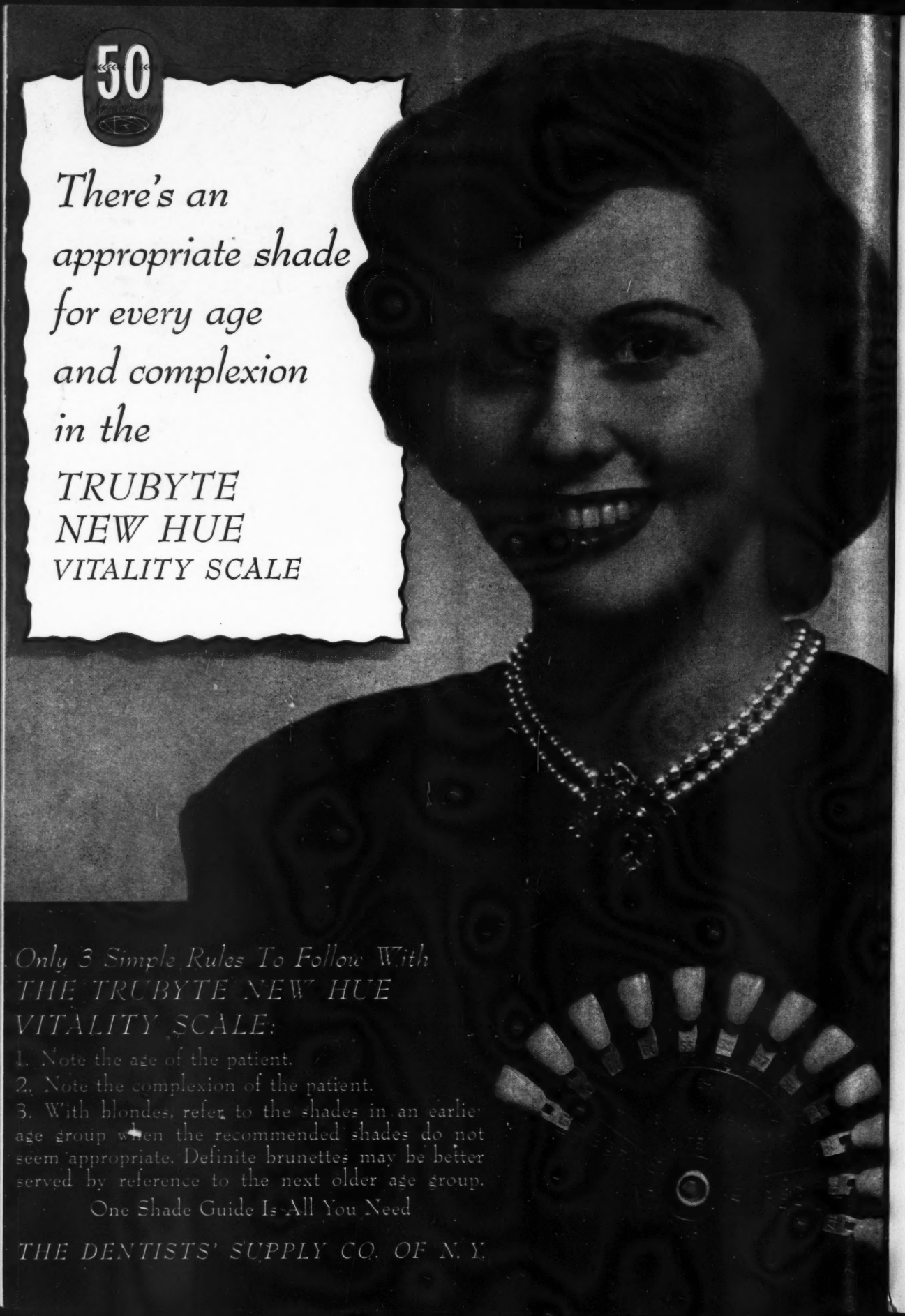

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